

SOUTH PARK BRIDGE PROJECT

Draft Environmental Impact Statement and Section 4(f) Evaluation

Appendix Volume VI

September 2005



U.S. Department of
Transportation
**Federal Highway
Administration**



Washington State
Department of
Transportation



King County
Department of
Transportation



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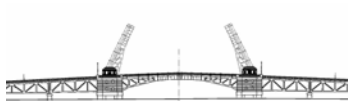
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South Park Bridge Project

Hazardous Materials Technical Report



Prepared for the
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February 2004

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Technical Report South Park Bridge Project

Hazardous Materials

February 2004

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Acronyms

ACM.....Asbestos Containing Materials	NPL National Priority List (Superfund)
ACOE Army Corps of Engineers	OA Other Area
AHERA ... Asbestos Hazard Emergency Response Act	PAH..... Polycyclic Aromatic Hydrocarbons
AOC..... Area of Concern	PCB Polychlorinated biphenyls
AST.....Aboveground Storage Tank	PEL..... Permissible Exposure Limit
ASTM..... American Society for Testing and Materials	POTW Publicly Owned Treatment Works
BGS Beneath Ground Surface	PPE..... Personal Protective Equipment
BTEX.....Benzene, Toluene, Ethyl Benzene, Xylene	PSCAA.... Puget Sound Clean Air Agency
CA.....Corrective Action	PSI..... Preliminary Site Investigation
CAA.....Clean Air Act	PVC Polyvinyl chloride
CSO Combined Sewer Overflow	RCRA Resource Conservation and Recovery Act
CERCLA . Comprehensive Environmental Response Compensation and Liability Act	RCW Revised Code of Washington
DCLU Department of Construction and Land Use	ROW Right of Way
DNR.....Department of Natural Resources	SIP State Implementation Plan
DOT United States Department of Transportation	SPCC Spill Prevention Control and Countermeasures Plan
EDR Environmental Data Research, Inc.	SVOC Semi-Volatile Organic Compounds
EIS Environmental Impact Statement	SWMU Solid Waste Management Unit
EPA.....Environmental Protection Agency	SWPPP Stormwater Pollution Prevention Plan
ESA.....Endangered Species Act	TCLP Toxicity Characteristic Leaching Procedure
FHWA Federal Highway Administration	TPH Total Petroleum Hydrocarbons
KCHD King County Health Department	TPS TPS Technologies—Soil Recyclers of Washington
LBP.....Lead-Based Paint	USG..... United States Gypsum
LUSTLeaking Underground Storage Tank	VOC Volatile Organic Compounds
LDW Lower Duwamish Waterway	WAC Washington Administrative Code
LDWG Lower Duwamish Waterway Group	WADOE.. Washington Department of Ecology
MTBE.....Methyl Tertiary-Butyl Ether	WSDOT... Washington State Department of Transportation
MHHW Mean High High-Water	UST Underground Storage Tank
MTCA.....Model Toxics Control Act	VOC Volatile Organic Carbon
NESHAP.. National Emission Standards for Hazardous Air Pollutants	
NPDES National Pollutant Discharge Elimination System	

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This report presents information on potential environmental concerns related to properties affected by the South Park Bridge Project. This report describes the hazardous material impacts associated with the five bridge alternatives. The project area extends from the intersection of East Marginal Way S. and 16th Avenue S. to the north to the intersection of 14th Avenue S. and S. Trenton Street to the south to 12th Avenue S. and S. Trenton Street to the west in the City of Seattle. The street name changes from 16th Avenue S. to 14th Avenue S. at the mid-span of the bridge. The South Park Bridge's eastern half is located within the City of Tukwila and its western half is located within King County. The South Park Bridge is a north-south arterial that crosses the Duwamish River. The existing bridge was constructed in the early 1930s, replacing a former wooden bridge crossing the Duwamish River at 16th Avenue S.

To focus analysis on properties that could be affected by the rehabilitation or replacement of the bridge, a site screening process was developed and implemented to identify properties with known or suspected environmental issues. Efforts included historical research on industrial and commercial land use, regulatory agency database lists and file reviews, and a windshield survey of the properties.

In total, 58 sites (see Figure 15) were reviewed as a part of this *Hazardous Material Technical Report*. Some site numbers are used more than once due to sites that are contained in the same structure as is the case for sites numbered 15, 18, and 24, or a site that was divided into multiple sites as is the case with site number 7 (see Table 1). The Initial Site Assessment (ISA) was used to screen the preliminary proposed alternatives. This report was submitted to Parsons Brinckerhoff on April 23, 2002 (see Appendix B for the site screening summary from the ISA Report). Forty-three sites were eliminated from further consideration because they were either located downgradient, too far away from the planned right-of-way for the South Park Bridge alternatives, or did not pose significant potential for environmental or construction risks based on the site's reported environmental history.

Table 1. List of Properties Assessed

Map Label	Address/ Location	Business Name	NPL	RCRA	UST	LUST	FINDS	Substantially Contaminated	Reasonably Predictable	PSI Recommended
1	7700 14th Ave. S.	Former Air Company property							X	
2	7733 16th Ave. S.	Boeing Parking Lot								
3	7745 16th Ave. S.	First InterBank of Kirkland/ Vacant Lot								
4	7747 16th Ave. S.	Vacant Lot						X		
5	Boeing Plant 2 North Campus Area	Boeing North Side 16th Ave. S.		X				X		X
6	Boeing Plant 2 Bldg 2-41 Area	Boeing South Side 16th Ave. S.		X				X		
7	Boeing Plant 2 Bldg 2-41 Area	Boeing South Side 16th Ave. S.		X				X		X
A	East Sediment Area Duwamish Waterway	NA	X					X		X
B	West Sediment Area Duwamish Waterway	NA	X					X		X
8	1289 S. Rose St.	South Park Marina						X		X
9	1400 S. Thistle St.	Renn Company								X
10	8456 14th Ave. S.	Boat Repair Yard								X
11	1401 S. Thistle St.	House								X
12	1411 S. Thistle St.	Marine					X		X	
13	8510 14th Ave. S.	Tire Factory								
14	8457 14th Ave. S.	Teriyaki Fast Food to Go								
15	1257 S. Sullivan St.	Pattaya Thai Restaurant								
15	8506 14th Ave. S.	Dry Cleaner								
15	8510 14th Ave. S.	DoLEX							X	

Table 1 . List of Properties Assessed (continued)

Map Label	Address/ Location	Business Name	NPL	RCRA	UST	LUST	FINDS	Substantially Contaminated	Reasonably Predictable	PSI Recommended
16	8507 14th Ave. S.	Discount Market								
17	8514 14th Ave. S.	Buena Visita Travel								
17	8520 14th Ave. S.	Salon Expo				X			X	X
18	8524 14th Ave. S.	Herb's Repair/ Taxi Meters			X	X			X	X
18	8524 14th Ave. S.	Coffee Stand				X			X	X
19	8515 14th Ave. S.	Muy Macho Restaurant								
20	8517 14th Ave. S.	Jalisco Mexican Restaurant								
21	8527 14th Ave. S.	Apartment Building								
22	8601 14th Ave. S.	El Molino Rojo								
23	8601 14th Ave. S.	Mexi-Mart								
24	8611 14th Ave. S.	Vacant Building								
24	8611 14th Ave. S.	Musica & Video								
24	8611 14th Ave. S.	South Park Hall								
25	8600 14th Ave. S.	Napoli Pizzeria								X
26	8613 14th Ave. S.	Vacant Brick Building								
27	8617 14th Ave. S.	Kelly's Tavern								
28	8616 14th Ave. S.	Multi-family Residential								
29	8621 14th Ave. S.	Babia's Sewing				X			X	X
30	8620 14th Ave. S.	Former Gas Station and Dry Cleaner, currently vacant building				X			X	X
31	8701 14th Ave. S.	Sea Mar Community Health Center							X	
32	8700 14 th Ave. S.	Former Service Station and Machine Shop, current warehouse				X			X	X
33	8709 14 th Ave. S.	Juan Colorado Restaurant				X			X	
34	8721 14th Ave. S.	Parking Lot				X			X	

Table 1 . List of Properties Assessed (continued)

Map Label	Address/Location	Business Name	NPL	RCRA	UST	LUST	FINDS	Substantially Contaminated	Reasonably Predictable	'SI Recommended
35	8721 14 th Ave. S.	A.D. Swayne Company				X			X	X
36	8722 14 th Ave. S.	Sea Mar Community Health Center								
37	No longer in study area									
38	8801 14 th Ave. S.	Medical Dental Office								
39	No longer in study area									
40	No longer in study area									
41	No longer in study area									
42	1057 S. Donovan St.	Residential								
43	1230 S. Trenton St.	Residential								
44	1226 S. Trenton St.	Residential								
45	1220 S. Trenton St.	Residential								
46	1210 S. Trenton St.	Residential								
47	1203 S. Donovan St.	Residential								
48	1207 S. Donovan St.	Residential								
49	8410 Dallas Ave. S.	Spencer Industries				X				X
50	8605 12 th Ave. S.	Residential								

NPA = National Priority List

RCRA = Resource Conservation and Recovery

LUST = Leaking Underground Storage Tank

UST = Underground Storage Tank

FINDS = Facility Index System

The 15 sites (see Figure 15) retained for detailed analysis from the north to the south along the ROW for each of the alternatives include:

Substantially Contaminated Properties

Based on the investigation of 58 sites, the following is a list of substantially contaminated properties located in the project study area.

- **The Boeing Company (Boeing) Plant 2:** Boeing's Plant 2 is a 107-acre aircraft manufacturing and assembly facility that has been in operation since the mid-1930s. Soil and groundwater contamination beneath the facility and sediment contamination along the plant's shoreline of the Lower Duwamish Waterway (LDW) has been confirmed. In 1994, the Environmental Protection Agency (EPA) and Boeing signed an Administrative Order of Consent requiring that Boeing investigate and perform corrective action at Plant 2 under the Resource Conservation and Recovery Act (RCRA). Boeing is currently investigating and performing corrective action cleanups for soil, groundwater, and sediment at Plant 2 under RCRA, and has begun a corrective-measures study to evaluate and select final cleanup actions for the Plant 2 facility and the sediments in the LDW adjacent to the facility.
- **Sediments within the Lower Duwamish Waterway:** The LDW is listed as a Superfund Site currently in the initial phases of investigation for cleanup of sediments, upland source control areas, and storm sewer drainage basins. The northern shore, Site A, of the LDW for this study is bounded by Boeing's Plant 2 facility, and the southern shore, Site B, is bounded by the South Park neighborhood. For this report, the sediments within the LDW are described as two separate sites.

Reasonably Predictable Properties

Based on the investigation of 58 sites, the following is a list of reasonably predictable properties located in the project study area.

- **1289 S. Rose Street:** At the boat repair yard, ship maintenance and repair activities, as well as hull cleaning and painting, were conducted in the open without surface seal. There is a high probability of soil and stormwater contaminations at the site. Aerial photographs show heavy staining on the ground surface prior to placement of asphalt service.
- **1400 S. Thistle Street:** Ship maintenance and repair activities, as well as hull cleaning and painting, were conducted in the open without surface seal. There is a high probability of soil and stormwater contaminations at the site.
- **8456 14th Avenue S.:** The northern portion of this property was used as a boat repair yard. Ship maintenance and repair activities, as well as hull cleaning and

painting, were conducted in the open without surface seal. There is a high probability of soil and stormwater contaminations at the site.

- **1401 S. Thistle Street:** This is a house with a junkyard surrounding the residence. Several abandoned vehicles are located on the property. Several hundred plastic containers are stored on-site.
- **8520 14th Avenue S.:** This is a former gasoline service station with a reported leaking underground storage tank site with petroleum contamination.
- **8524 14th Avenue S.:** This is an existing auto repair and service station with a reported leaking underground storage tank site with petroleum contamination.
- **8600 14th Avenue S.:** The Napoli Pizzeria restaurant site is in the Washington Department of Ecology (WADOE) records, but they do not indicate that the company currently participates in dangerous waste activities. Based on a site visit from public areas, there is high potential that Asbestos Containing Materials/Lead Based Paint (ACM/LBP) materials are present in the building structure.
- **8621 14th Avenue S.:** This is a former auto repair shop and service station with a reported leaking underground storage tank site with petroleum contamination. Based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.
- **8620 14th Avenue S.:** This is a former dry cleaning operation with a long operational history. Chemical containers are stored on the property. Based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.
- **8700 14th Avenue S.:** This former Chevron service station site has a reported leaking underground storage tank site with petroleum contamination in soil and groundwater.
- **8700 14th Avenue S.:** This is a former machine shop operation which is listed as having released chlorinated solvents into the soil. A warehouse currently occupies the site.
- **8410 Dallas Avenue S.:** The Spencer Industries Incorporated aircraft part manufacturing facility has released chlorinated solvents contaminating the groundwater.

As listed above, two of these sites—Boeing’s Plant 2 and the LDW—are considered to be substantially contaminated properties. The first site is under RCRA Corrective Action and the other site has been listed as a Superfund Site. Substantially contaminated properties are typically large or have large volumes of contaminated materials, have a long history of industrial or commercial land use, and have contaminants that are persistent or difficult and expensive to manage.

An additional 12 sites are considered to be reasonably predictable properties. These sites are properties where recognized environmental conditions are known based on existing data, or can be predicted based on site observations, previous experience in similar situations, or by using best professional judgment. These sites are typically small, the contaminants are localized and are relatively non-toxic, or abatement/remediation activities are routine (e.g., asbestos abatement or petroleum hydrocarbon contaminated soil remediation).

All of the structures that are located within the South Park Bridge Project study area were constructed when asbestos containing materials and lead-based paints were commonly used.

Several sites have known and/or suspected impacts to the subsurface media within the project area. Contaminated soil, groundwater, and sediment are expected at the substantially contaminated sites and many of the reasonably predictable properties. Depending upon the structures selected to support bridge structure, it also is possible for contaminated groundwater to be encountered during construction. Examples of expected soil and groundwater contaminants include petroleum products, metals, PCBs, and chlorinated solvents. Surface water impacts are anticipated. Soil erosion and other uncontrolled releases that may occur during construction could negatively impact surface waters. Impacts associated with building materials that contain regulated substances (including asbestos-containing materials and lead-based paint) are also a potential concern for all proposed alternatives.

Table 2 lists properties known to be substantially contaminated and suspected to be contaminated for each of the build alternatives. These properties need to be investigated under the Preliminary Site Investigation (PSI) protocols described in WSDOT's Environmental Procedures Manual M31-11. A PSI for these properties will provide cost data for handling contaminated soil, groundwater, and/or sediments. For each alternative, the PSI will also provide cost projections for realistic scheduling, disposal fees, and design of lay-down areas to handle anticipated contaminated materials. Additional properties that are substantially contaminated and/or suspected to be contaminated adjacent to different bridge alternatives need to be addressed to provide and apply accurate environmental costs to each of the build alternatives.

The No Action Alternative would not require property acquisition, so environmentally impacted properties (sites) would not be encountered. The Rehabilitation Alternative encounters five properties that were found to be substantially and/or suspected to be contaminated. The Bascule Bridge Alternative encounters seven properties that were found to be substantially and/or suspected to be contaminated. The Mid-Level Fixed-Span Bridge Alternative encounters 14 properties that were found to be substantially and/or suspected to be contaminated. The High-Level Fixed-Span Bridge Alternative encounters all 38 of the properties (sites) that were found to be substantially and/or suspected to be contaminated. At the time of developing this document, it is assumed that site 25 will be used as a project laydown area.

A PSI should be conducted on each of the 15 properties listed in Table 2 in order to:

- 1) develop an accurate assessment of the environmental impacts and costs associated with handling contaminated media for each bridge alternative; 2) determine the best design alternative, accurate construction costs, and any increases in project construction schedules related to environmental impacts and handling contaminated media; and 3) estimate off-site disposal costs and hazardous worker monitoring and/or training costs.

Table 2. Substantially and Suspected Contaminated Sites by Bridge Alternative

Site Number Locations	No Action Alternative	Rehabilitation Alternative	Bascule Bridge Alternative	Mid-Level Fixed-Span Bridge Alternative	High-Level Fixed-Span Bridge Alternative
5 & 7 (Boeing)		X	X	X	X
A		X	X	X	X
B		X	X	X	X
8		X	X	X	X
9		X	X	X	X
10		X	X	X	X
11		X	X	X	X
17			X	X	X
18			X	X	X
25		X	X	X	X
29				X	X
30				X	X
32					X
35					X
49		X	X	X	X

Estimated costs for mitigation measures are included in this report. The estimated cost for developing and conducting site-specific preliminary investigations is provided. Limited costs estimates for environmental impacts related to construction activities are provided due to the unavailability of specific contamination concentration data and design information for the project. Unit cost estimates are provided for each of the suspected impacts that may affect King County Department of Transportation (KCDOT) analysis of properties to purchase and/or lease liability, worker safety, and construction activities. The estimates are based on conceptual design, environmental data, and site information gathered during site visits to adjacent public areas.

Proposed mitigation measures include preparing a contaminated media contingency plan that would provide specific guidance for managing contaminated media during construction activities for the selected alternative. The contaminated media contingency plan should address risk-based cleanup and recommend provisions for field screening options, notification requirements, and soil stockpile management. Groundwater

mitigation measures include alternatives for construction activities that minimize or avoid intercepting the groundwater table, if possible. Surface water mitigation measures are addressed by way of a Spill Prevention Control and Countermeasure (SPCC) plan. Mitigation measures for demolition debris rely heavily on recycling. Possible impacts related to federal and state Superfund authorities within the project area should be mitigated through early coordination with the EPA and WADOE, respectively.

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Chapter 2 is an introduction to the technical analysis contained in this discipline report. This chapter describes existing conditions, the history of the project, the purpose and need for the project, and the five project alternatives being considered for environmental review. In addition, this chapter summarizes project coordination conducted to date with agencies, local governments, the community advisory group, and members of the public.

2.1 Description of Existing Conditions

This first section describes existing conditions pertinent to the proposed South Park Bridge Project. The project area is defined. The existing bridge and its current condition are described. The local roadway network in the South Park community is described. Non-vehicular transportation in the community is also summarized.

2.1.1 The Project Area

The South Park community is about four miles south of downtown Seattle (see Figure 1). The community lies south of the Duwamish Waterway, the man-made channel portion of the Duwamish River as it enters Elliott Bay. Though originally incorporated as its own city in 1905, much of the area was annexed by the City of Seattle in 1907.¹ The project area lies south of the industrial Georgetown area of Seattle and the King County International Airport (known as Boeing Field). It encompasses the roadway corridor defined by 16th Avenue S. between East Marginal Way S. and the South Park Bridge and 14th Avenue S. between the bridge and S. Trenton Street. Residents and business owners in the project area generally identify with the City of Seattle.

The project area, however, is governed by three local government jurisdictions. The area north of the Duwamish Waterway (between East Marginal Way S. and the waterway) lies within the city limits of both the City of Seattle (northern portion) and the City of Tukwila (southern portion). The area south of the Duwamish Waterway (between the waterway and S. Trenton Street) lies within unincorporated King County and the City of Seattle. The two-block area between the riverbank and Dallas Avenue S. is in King County, and the city blocks to the south are in the City of Seattle.

Land uses in the project area are mixed residential, retail commercial, and industrial. The Boeing Company's Plant 2 dominates the north side of the Duwamish Waterway. On the south side, retail commercial and light industrial land uses front on 14th Avenue S. and along the south bank upstream of the South Park Bridge. Single-family residences, however, generally characterize the area off of this main transportation artery.

¹ City of Seattle, *South Park Residential Urban Village Plan*, 1998.

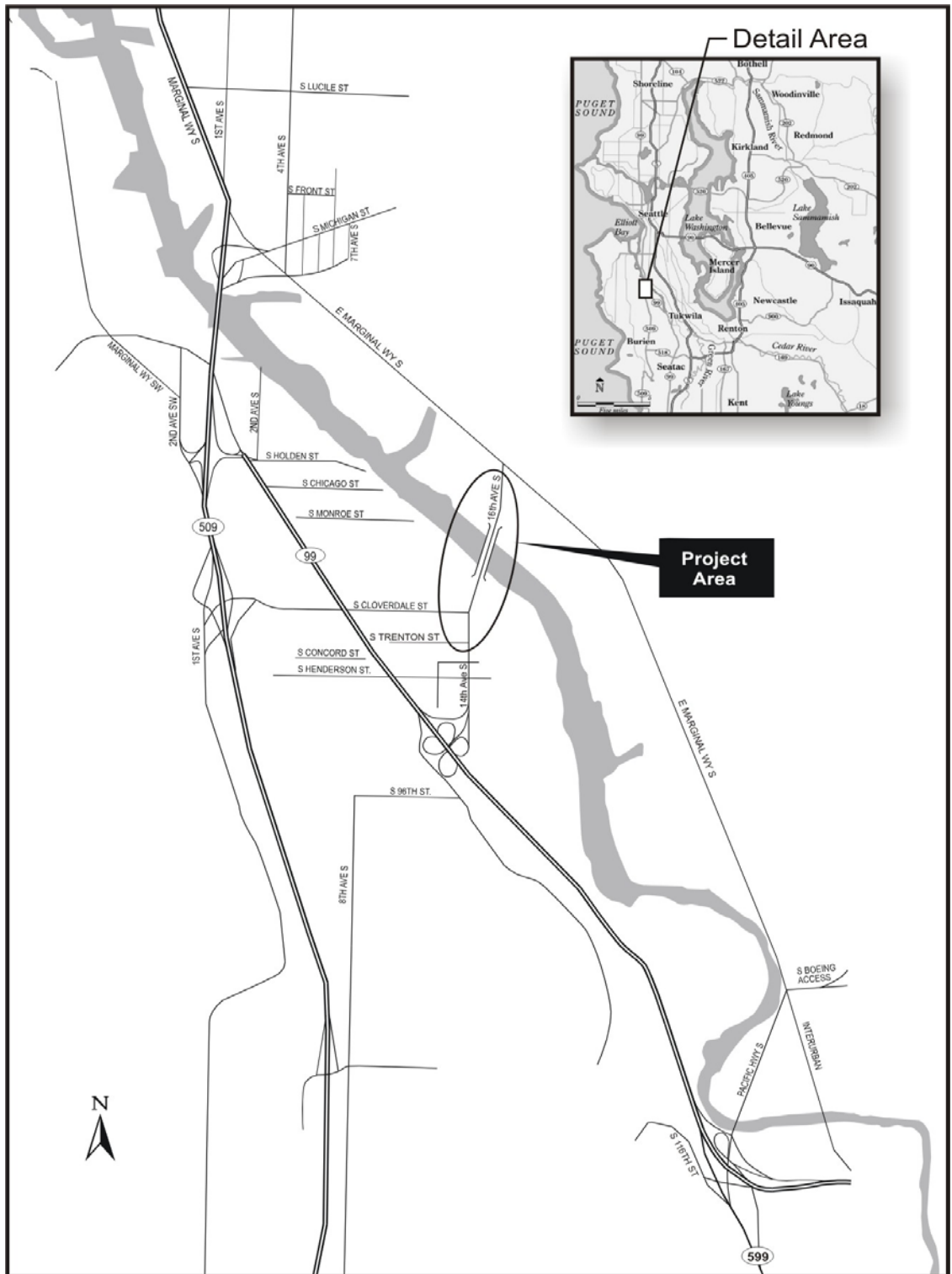


Figure 1
Project Area and Vicinity

2.1.2 The Existing South Park Bridge

The South Park Bridge was constructed in 1929-1931 (see Figure 2). The existing structure consists of a Scherzer rolling-lift double-leaf bascule movable span. Because it is the only operational example of a Scherzer rolling-lift bascule bridge in Washington, the bridge is listed on the National Historic Register.²

Each side is flanked by two truss approach spans and twelve concrete slab approach spans. The overall length of the bridge is approximately 1,045 feet abutment-to-abutment and approximately 1,340 feet in entirety to the grade match points. The double-leaf bascule movable span has a center-to-center distance between the front bearing points of approximately 190 feet. The roadway consists of four 9.5-foot lanes. The pavement is 38 feet with 6-foot sidewalks on both sides. Reinforced concrete piers founded on timber piling support the bascule span. Two large in-water piers support the counterweights, track supports, and racks for the rolling lift. The attached towers house the operating machinery, electrical equipment, and operator control room.

The South Park Bridge spans the Duwamish Waterway, which is used for industrial, commercial, and recreational purposes. The bridge is near the upstream limit of heavy industrial uses along the Duwamish Waterway, but it is within the section of the navigation channel maintained by the U.S. Army Corps of Engineers. The existing maximum vertical clearance of the bridge when closed is approximately 34 feet at Mean High Water (MHW). Bridge openings occur approximately three times per day on average to accommodate waterway traffic, although on some days the bridge does not open at all. The existing navigable horizontal clearances is approximately 118 feet at the water level (fender-to-fender), but narrows to 92 feet approximately 114 feet above the water between the open bascule leaves. The depth of the navigation channel is approximately 15 feet at Mean Lower Low-Water (MLLW).

2.1.3 Bridge Condition

In spite of substantial on-going maintenance and repairs, the South Park Bridge has suffered considerable deterioration over the past 70 years. In particular, the bascule piers are cracked and unstable resulting in the misalignment of the movable spans. Consequently, the center lock and glide tracks require on-going modifications and adjustments to allow the bridge to operate properly. Long-term, the stability of the entire bridge is at risk due to the original shallow placement of the supporting piles, which has resulted in movement of the bridge piers over the decades. The condition of the bridge worsened significantly following the Nisqually Earthquake in February 2001, and it remains vulnerable to future seismic events. A 2002 bridge inspection conducted by King County resulted in an existing condition rating of 6.0 out of a possible score of 100

² King County Landmarks and Heritage Commission. *Findings and Fact Decision – 14th Avenue South Bridge*, decision made December 19, 1996 and filed January 2, 1997.

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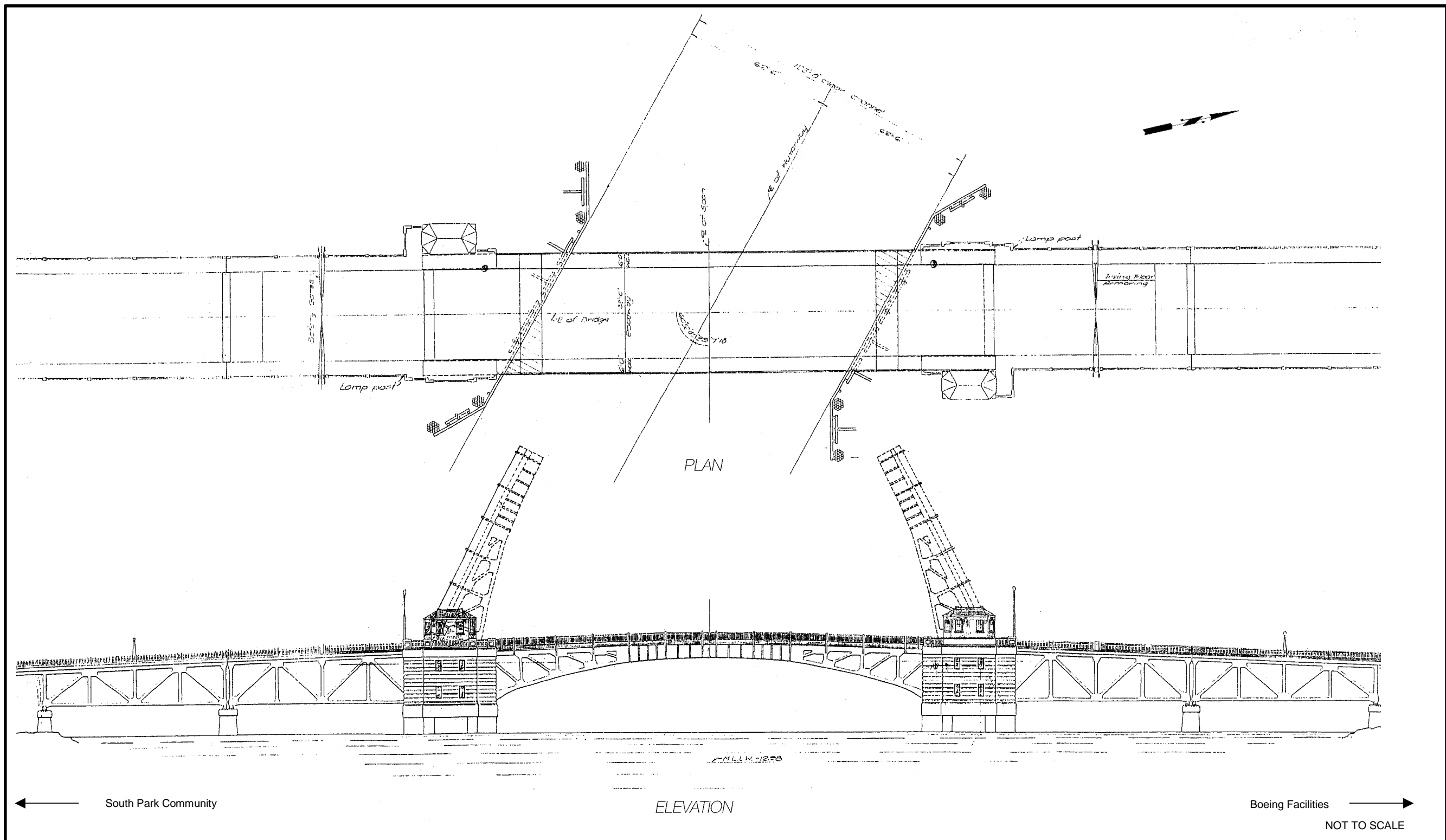


Figure 2
Existing South Park Bridge

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(based on Federal Highway Administration criteria).³ This was among the lowest ratings given any bridge structure in the State of Washington in 2002.

2.1.4 Roadway Network

The bridge presently accommodates an average daily traffic volume of approximately 20,000 vehicles per day, based on 2001 City of Seattle traffic counts. Many of the vehicle trips originate in residential neighborhoods in the communities of West Seattle, White Center, and SeaTac. For South Park community residents, the bridge is the primary direct means of access to the north, downtown Seattle, and I-5.

The existing roadway network surrounding the South Park Bridge consists of a variety of roadway types. They range from local two-lane streets to major limited-access highways. Regional traffic movement in the South Park area is concentrated to three nearby north-south corridors including SR-99, SR-509, and East Marginal Way S. Local circulation is provided through a system of local and collector streets. Features such as the Duwamish Waterway and large-scale facilities such as Boeing Field and the Boeing Plant 2 create barriers within the road network and limit opportunities for access to and from the major regional routes.

2.1.5 Freight, Transit, and Pedestrians

Freight movement in peripheral areas of the South Park community is significant due to the high concentration of industrial and manufacturing uses in the general area. Major truck traffic is primarily directed along East Marginal Way S. and SR-99. The South Park Bridge and S. Cloverdale Street are also designated truck routes for oversized vehicles. Trucks use S. Cloverdale Street to access the City of Seattle South Recycling and Disposal Station located at 8105 Fifth Avenue S. as well as SR-509 and SR-99 located on the western edge of the South Park community. With respect to rail movements, the only train crossing in the study area exists immediately south of the intersection of East Marginal Way S. and 16th Avenue S.

Bus routes serving the South Park community are primarily located along major north-south corridors, including East Marginal Way S., 14th and 16th Avenues S., and S. Cloverdale Street. Six major King County Metro bus routes serve the area. Routes 60 and 130 cross the South Park Bridge and four of the six bus routes travel along S. Cloverdale Street.

Pedestrians and bicyclists are commonly seen in the South Park area, especially near the community's center near the intersection of 14th Avenue S. and S. Cloverdale Street. Mid-day pedestrian volumes are higher than the morning or evening commute periods due to shopping, transit use, and lunch-related walking trips.

³ King County, *Bridge Inspection Report*, August 1, 2002.

2.2 History of Project

Since 1931, the moveable bridge has crossed the Duwamish Waterway in the South Park community of the City of Seattle. The following sections contain an overview of the studies preceding the start of the current environmental review effort, a summary of two key documents that framed the initial development of project alternatives, and ongoing reports documenting the changing condition of the bridge.

2.2.1 Overview of Studies

In recent history, over 20 engineering studies have been prepared on the South Park Bridge. Starting in 1987, when the bridge was 56-years-old, King County contracted for the preparation of a general engineering investigation report to assess the condition of the bridge. In 1991 and 1993, additional studies were completed including a geotechnical study, foundation design report, and a life-cycle cost analysis. This information led King County to undertake a series of studies in 1994 addressing liquefaction risks as well as the condition of the concrete, substructures, approach span joints and loading rating. In addition, a study was conducted to evaluate potential replacement alternatives for the bridge and another study investigated community issues related to the bridge. Since 1994, King County has recognized that the bridge required either rehabilitation or replacement and has continued to investigate the condition and vulnerabilities of the bridge in an effort to evaluate these options.

2.2.2 Summary of Key Engineering Reports

Two key engineering studies were conducted that helped to frame the current pursuit to evaluate potential alternatives to rehabilitate or replace the South Park Bridge. A 1994 Sverdrup study evaluated potential design options and a 1999 Entranco study researched and presented the likely steps required to conduct the necessary environmental review of the project alternatives and to complete necessary permitting. These studies are summarized below.

2.2.2.1 Sverdrup Study

In November 1994, Sverdrup Civil, Inc. completed a report titled *14th/16th Avenue South Park Bridge Rehabilitation/Replacement – Design Report* for the King County Department of Public Works. The objective of that report was to evaluate alternative alignments and bridge types, impacts of the alternatives studied and to present to King County results, findings, conclusions, and recommendations of a preferred replacement bridge for the existing South Park Bridge.

The 1994 design report studied five alternatives: rehabilitation of the existing bridge; two fixed-span bridge replacements (a 100-foot vertical clearance bridge and a 60-foot vertical clearance bridge); a new moveable bridge (double-leaf bascule bridge); and bridge closure (permanent closure and demolition of the existing bridge). Other alternatives that had been evaluated but were not carried forward, according to this report were: locating the replacement bridge immediately east (upstream) of the existing

alignment; matching the existing alignment; and locating the northbound and southbound lanes on separate structures. These three alternatives were not considered feasible and thus were not studied further.

The 1994 design report concluded that the 60-foot vertical clearance fixed-span bridge design could be used to replace the existing South Park Bridge, with consideration of mitigation of impacts to some users.

2.2.2.2 Entranco Study

In July 1999, Entranco completed the *16th Avenue S. Bridge Replacement Project: Environmental Review Report* for the KCDOT. The objective of this report was to present to King County a summary of environmental review and permitting activities that would likely be required for replacing the bridge.

The report identified the proposed project as a replacement of the existing bridge, including improvements to the approach road – 14th Avenue S. to the south and 16th Avenue S. to the north of the Duwamish Waterway. The project limits were identified as East Marginal Way S. on the north and S. Cloverdale Street on the south. The report asserted three build alternatives should be selected for evaluation in the EIS, including alternatives with differing alignments and bridge types. It was further noted that three alternatives would be the least number needed to provide a reasonable range of alternatives under National Environmental Policy Act (NEPA) and Washington State Environmental Policy Act (SEPA) regulations.

Entranco outlined the various tasks that would be required under the Washington State Department of Transportation (WSDOT) Environmental Procedures Manual and Federal Highway Administration (FHWA) guidelines. The report identified these tasks to include the following: the development of bridge alternatives, screening, and selection of alternatives for analysis in the EIS; preliminary engineering design, including an update to the 1994 rehabilitation/replacement report; survey and mapping work; hydraulic and geotechnical studies, and conceptual-level design documentation. The report concluded that the alternatives proposed, including rehabilitation of the existing bridge, had not been designed in enough detail to make a decision regarding a preferred alternative. Related to the environmental review process, the report recommended the public involvement program include coordination with an Interdisciplinary Team (IDT) of agency representatives and a community advisory committee. The report also listed 17 specific environmental discipline reports that would likely be required for the preparation of the EIS.

The findings and recommendations presented in the Entranco report formed the basis from which King County staff developed the current contracted scope of work for environmental review. The scope includes engineering, environmental review, agency coordination, and public involvement tasks.

2.2.3 Continuing Deterioration

Since 1999, King County has continued to move forward to develop alternatives for rehabilitating or replacing the existing South Park Bridge. Bridge conditions have worsened since the engineering studies were conducted in the mid-1990s. In February 2001, the Puget Sound Nisqually Earthquake caused significant and widespread damage to the bridge. Over \$740,000 was required to repair the bridge in order to keep it operational.⁴ The King County 2001 bridge inspection report recorded a rating of 8.0 out of a total possible score of 100 (based on FHWA criteria).⁵ The following year, this rating decreased to 6.0.⁶

2.3 Purpose and Need of Project

As a required element of the EIS, a Purpose and Need Statement was developed for the South Park Bridge Project to clarify the underlying basis for the proposed action. The development of the initial draft Purpose and Need Statement involved review and comment by a number of parties including King County staff and the Project Advisory Committee (PAC) that includes agencies with jurisdiction over the proposed project. The draft Purpose and Need Statement was also revised based on comments received at several public involvement events. In April 2002, King County forwarded the draft Purpose and Need Statement to the Federal Highways Administration (FHWA) for review and approval. The text of the FHWA-approved version of the Purpose and Need Statement is presented in the following sub-sections, although minor revisions and footnotes have been included for clarification.

2.3.1 Function and Role of the South Park Bridge

The KCDOT is proposing the rehabilitation or replacement of the South Park Bridge located in King County, Washington. Since 1931 the moveable span bridge has carried traffic along the 14th Avenue South and 16th Avenue South corridor across the Duwamish Waterway. On a typical workday, a mix of approximately 20,000 cars, trucks and buses use the bridge to access employment centers in downtown Seattle and the Duwamish industrial area. Many of the vehicle trips originate in residential neighborhoods in the communities of West Seattle, White Center, and SeaTac. For residents of the community of South Park, the bridge is the only immediate means of access to and from destinations east of the community. The moveable structure spans the navigation channel of the Duwamish Waterway. When open, large-size industrial and recreational vessels have access to upriver destinations. The South Park Bridge is also a major route for heavy truck traffic traveling to and from large industrial manufacturers including the Boeing Company.

⁴ Time Lane, King County Department of Transportation, Telephone Conversation, September 23, 2002.

⁵ King County, *Bridge Inspection Report*, August 21, 2001.

⁶ King County, *Bridge Inspection Report*, August 1, 2002.

2.3.2 Purpose of Proposed Project

The purpose of the proposed action is to find the most feasible long-term solution to address the deteriorated condition and increasing seismic vulnerability of the South Park Bridge. The proposed action must also maintain the vital transportation linkage for cars, trucks, buses, bicyclists and pedestrians across the Duwamish Waterway.

2.3.3 Need for the Proposed Project

In spite of substantial ongoing maintenance and repairs, the South Park Bridge has suffered substantial deterioration over the past 70 years. Existing problems with the bridge worsened significantly following the Nisqually Earthquake in February 2001 and the bridge remains vulnerable to future seismic events. A recent 2002 bridge inspection conducted by King County resulted in an existing condition rating of 6.0 out of a possible score of 100 (based on FHWA criteria).⁷ This is among the lowest ratings given any bridge structure in the State of Washington.

The bridge could be closed as a consequence of excessive structural deterioration or failure of the moveable span operations (particularly in the event of another seismic event). Closure of the bridge would have a significant impact on the transportation system and traffic conditions throughout the lower Duwamish industrial area-- including SR-99, SR-509, First Avenue S. and East Marginal Way S. Improvements are required in the near future to protect public safety and to maintain a transportation corridor that is critical to the local and regional economy.

2.3.3.1 Seismic Vulnerability

The February 28, 2001 Nisqually earthquake (magnitude 6.8, located 35 miles from Seattle and deep below the surface) caused significant damage to the South Park Bridge. Since the earthquake, operation of the moveable span has been less reliable, requiring the bridge to be closed for repairs intermittently for several days. The continuing periodic closure of the bridge for repairs has heightened the awareness of the need for rehabilitation or replacement of the existing bridge.

2.3.3.2 Roadway Design Deficiencies

The South Park Bridge does not meet current roadway design standards and has many design deficiencies. For example, the overall bridge width including lane widths, shoulders and sidewalks should be 64 feet according to current design standards. The existing bridge width is currently only 52 feet (measured outside-to-outside).

2.3.3.3 Transportation Issues

An average of 20,000 daily vehicle trips cross the Duwamish Waterway on the South Park Bridge. It is a significant link between the east and west side of the Duwamish, both locally and regionally. The South Park Bridge is also a route for heavy and oversize

⁷ The original text of the FHWA-approved Purpose and Need Statement cited the condition rating of 8.0 from the 2001 King County Bridge Inspection Report. The current cited condition rating of 6.0 is from the King County *Bridge Inspection Report* dated August 1, 2002.

truck traffic. According to previous studies, closure of the bridge would have a significant noticeable impact on the transportation system and traffic conditions throughout the lower Duwamish industrial area – including the Highway 99 and East Marginal Way S. corridors.

2.3.4 Key Issues

2.3.4.1 Community Impacts

The existing South Park Bridge is a highly valued feature of the South Park community. There is widespread concern in the community that changes to the bridge could have a significant adverse impact on the community and the emerging economic vitality of the South Park business district centered along 14th Avenue South. The *South Park Residential Urban Village Plan of 1998* (the neighborhood plan) identified one of its primary objectives as “finding a solution for the South Park Bridge that is sensitive to the needs of the community.”

The South Park community is also ethnically diverse. Approximately 30 percent of the populations’ primary language is not English. These factors require greater emphasis on the consideration of environmental justice⁸ in order to ensure that the potential adverse effects from the proposed project do not have a disproportionate impact on lower-income or minority populations.

2.3.4.2 Aquatic Habitat Protection

The Duwamish Waterway is an important route for juvenile and adult salmon migrating between the upper Green River, Elliott Bay and the Pacific Ocean. However, much of the waterway in the vicinity of the South Park Bridge currently provides poor habitat for chinook salmon (listed as threatened under the Endangered Species Act) and other marine organisms. The armored shoreline along the waterway in the project area provides minimal habitat for young chinook salmon during their critical rearing period. Recovery plans now underway for threatened and endangered salmon will address potential means of enhancing habitat favorable to the survival and growth of young salmon from the Duwamish/Green River system. Restoration of the shoreline in the vicinity of the project would address immediate and long-term needs for habitat improvement along the Duwamish Waterway.⁹

2.3.4.3 Duwamish Waterway Navigation

The Duwamish Waterway is used for industrial, commercial and recreational purposes. The South Park Bridge is near the upstream limit of heavy industrial uses along the waterway, but it is within the section of the waterway maintained by the U.S. Army

⁸ Environmental justice concerns the need to avoid disproportionate, significant adverse impact on minority and/or low-income communities.

⁹ This section highlights the importance of addressing aquatic habitat values in the project area, as well as the implications for species currently listed under the ESA; however, it is not intended as a complete characterization of the factors that need to be considered in this regard.

Corps of Engineers as a navigation channel. A number of local businesses, as well as the U.S. Coast Guard, have emphasized to King County that any engineering solutions for the South Park Bridge must maintain navigational access upstream of the existing bridge.

2.4 Description of Alternatives

This section describes the No Action Alternative, the Rehabilitation Alternative, and the three replacement bridge alternatives (Bascule, Mid-Level Fixed-Span, and High-Level Fixed-Span bridge alternatives). The first section explains the transportation engineering criteria and standards used to design the Rehabilitation Alternative and the three replacement bridge alternatives. The second section describes the horizontal and vertical profile of the bridge alternatives, navigation channel clearances, and impacts to the local road network. The last section describes construction activities associated with each of the five alternatives for the South Park Bridge Project.

2.4.1 Design Criteria

Except for the No Action Alternative, construction of any of the project alternatives would incorporate current transportation engineering design criteria for the cross-section, alignment, design speed, maximum grade, and transition segment. The road cross-section design is a key design element that would change for any of the build alternatives (see Figure 3). The existing bridge cross-section incorporates four 9.5-foot travel lanes, raised curbs on both sides of the pavement, and a 6-foot sidewalk on either side of the roadway. The outside-to-outside dimension of the existing bridge is 52 feet. These lane widths are non-standard and would be changed for the Rehabilitation Alternative and for the three replacement bridge alternatives. For the Rehabilitation Alternative, the pavement would remain approximately the same width as it is currently, but would be reconfigured for three standard lanes. There would be two 12-foot lanes on the outside and one 11-foot lane in the middle of the roadway. Traffic would use one 12-foot lane for northbound travel and the other two lanes for southbound travel. The 6-foot sidewalk on either side of the roadway would be enlarged to approximately 7.5 feet. In contrast, each of the replacement bridge alternatives would be designed with four standard 11-foot lanes, traffic barriers or a painted median down the center, a traffic barrier on each side of the pavement, and a single combined 13-foot pedestrian/bike path on the west (downstream) side of the bridge. The width of the cross-section for the new replacement bridge alternatives including the exterior barriers would total approximately 68 feet (outside-to-outside of the bridge structure).

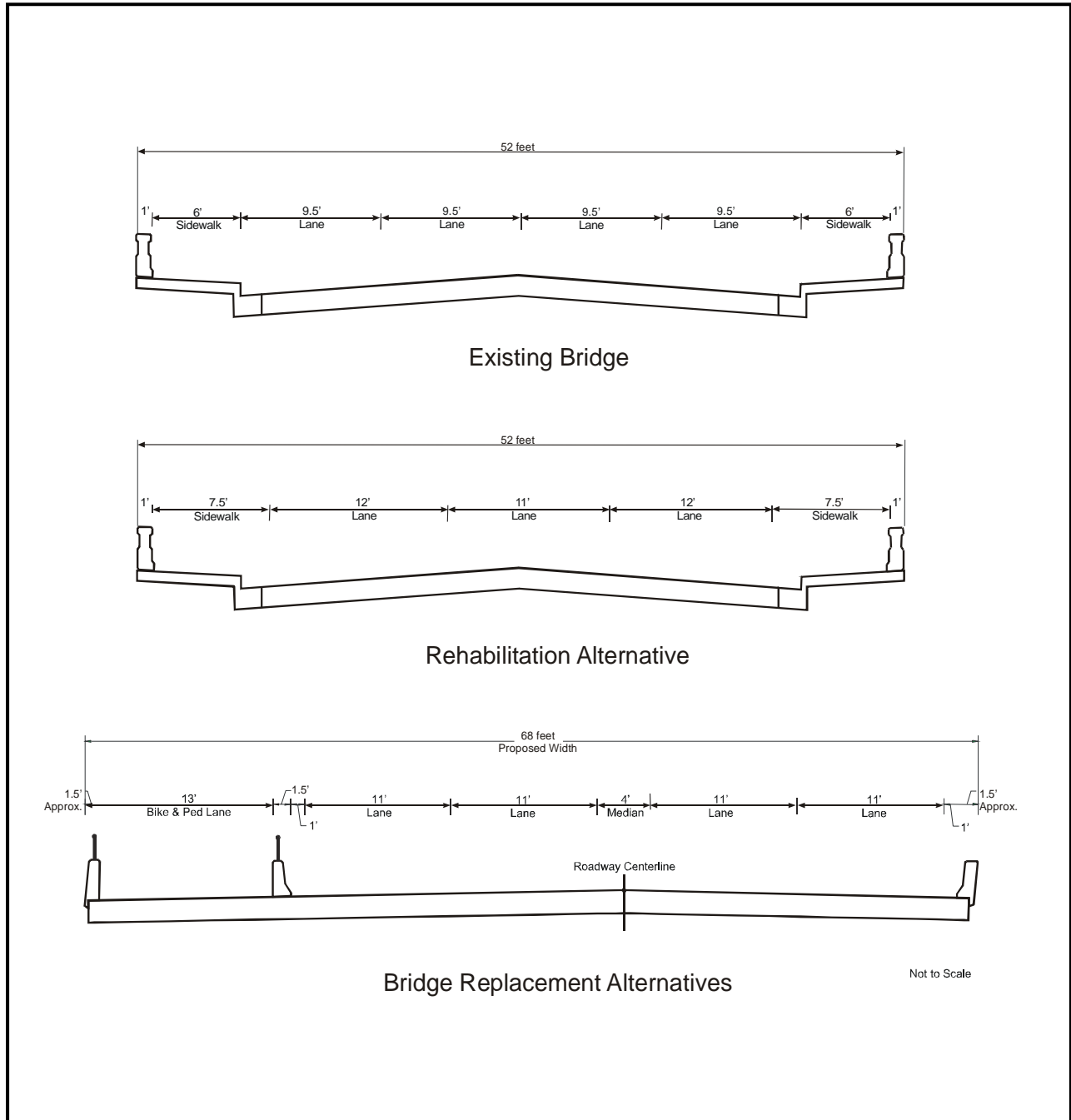


Figure 3
Existing and Proposed
Bridge Cross-Section Designs

An initial range of potential bridge alternatives and alignments was considered based on earlier studies,¹⁰ current input from stakeholders, and the project team. During the course of this initial alternatives development process, it was determined that there were no practical alternative alignments for a replacement bridge other than to parallel the existing bridge. It was determined that replacement bridge alternatives should be aligned to the west (downstream) of the existing bridge in order to minimize impacts to existing land uses. Conceptual engineering for the replacement bridge alternatives set the alignment for these bridges at approximately 80 feet to the west of the centerline of the existing bridge (i.e., as close to the existing structure as practicable without compromising constructability). The initial alignment of the new roadway was the same as the existing road alignment on the south side of the waterway. The existing roadway is quite narrow. Matching the centerline of the new bridge alternatives to the existing would require acquisition of both land and buildings on both sides of 14th Avenue S. To minimize these impacts, the alignment of the new transition segment was shifted slightly to the east of the existing road alignment because there are fewer parcels and buildings located on the east side of the road compared to the west. In addition, more of the buildings located on the east side are set back from the existing sidewalk than on the west side. In this way, the proposed alignment for the replacement alternatives has been developed to avoid or minimize potential land use and relocation impacts.

Other design factors affecting impacts to adjacent properties include the new bridge's design speed and maximum grade. King County road standards call for a 35 mph design speed and a maximum of 8 percent grade. Initially, these standards were incorporated into each of the alternatives. Implementation of an 8 percent maximum grade for the High-Level Fixed-Span Bridge Alternative, however, would have resulted in a very long bridge (project terminus to terminus). For example, the north terminus would have extended across East Marginal Way S. and into Boeing Field. To reduce impacts to land use, the maximum grade for the High-Level Fixed-Span Bridge Alternative would need to slightly exceed 8 percent. In this manner, the north side of the bridge would terminate south of East Marginal Way S. This grade change reduced the overall length of the bridge on both south and north ends of the bridge by several hundred feet for the High-Level Fixed-Span Alternative.

Community impacts would also be affected depending on the design of the transition segment. This is the segment of the roadway that merges the differing widths of the new roadway and the existing narrow roadway. Typically, transition segments begin at the point the grade of the bridge matches the grade of the existing roadway and extends beyond some distance. The actual rate at which the width of the roadway is reduced is defined by transportation engineering design standards. To minimize impacts to land uses along 14th Avenue S., King County proposes to start the transition segment from the abutment for all alternatives. This means that by the time the bridge matches the grade of the existing roadway, the width of the new bridge is nearly the same width as the existing road. As a result, the total length of the roadway is reduced potentially several hundred

¹⁰ Entranco, Inc., *Environmental Review Report: 16th Avenue S. Bridge Replacement*, July 1999.

feet in length. In addition, the width of the transition segment for the Mid-Level Fixed-Span Alternative is further reduced by having the single combined 13-foot pedestrian/bike path split off from the main bridge structure at approximately S. Orr Street and descended to ground level in a zigzag fashion. This design modification further reduced the overall impact of the Mid-Level Fixed-Span Alternative.

Together, the design criteria discussed in this section would allow for the construction of a replacement bridge that provides increased safety for vehicles, bicyclists, and pedestrians.

2.4.2 The Alternatives

A total of five alternatives were selected for evaluation in the environmental review process including: the No Action Alternative, the Rehabilitation Alternative, the Bascule Bridge Alternative, the Mid-Level Fixed-Span Bridge Alternative, and the High-Level Fixed-Span Bridge Alternative. These alternatives were selected from an initial group of nine preliminary project alternatives.¹¹ The alternatives proposed for evaluation in the environmental review process were selected because they had fewer potential impacts than the other preliminary alternatives. Based on comparison ratings for seven evaluation criteria (regional mobility, local access, navigation, community impacts, aquatic habitat, construction impacts, and estimated project costs), the following preliminary alternatives were dropped from further consideration: a low-level fixed-span bridge, a movable swing bridge, a vertical lift movable bridge, and a tunnel option. The following sections describe each of the proposed project alternatives to be considered in the environmental review process based on conceptual civil and structural engineering.¹²
13

2.4.2.1 No Action Alternative

The No Action Alternative assumes that the existing bridge structure's poor condition would require it to be closed at some time in the future. Deterioration due to use could allow the bridge to continue to operate for the foreseeable future, but at some time in the future, the bridge would need to be closed. As such, for purposes of environmental review, it is assumed the existing bridge would be closed permanently sometime before 2027.

However, the bridge could be closed for other reasons than simply deteriorated condition. Another earthquake could cause an unexpected emergency closure of the bridge at any time. The on-going movement of the bridge foundations could eventually cause the moveable spans to become misaligned to the extent that repairs would be infeasible. Or,

¹¹ Parsons Brinckerhoff. *South Park Bridge Project: Summary Technical Memo—Alternatives Development and Screening*, September 6, 2002.

¹² Parsons Brinckerhoff. *South Park Bridge Project: Conceptual Plans*, June 2003.

¹³ Parsons Brinckerhoff. *South Park Bridge Project: Structural Alternatives Study*, November 2003.

the cost of maintaining the bridge could become more than King County is willing to expend. Under any of these circumstances, the bridge would be closed.

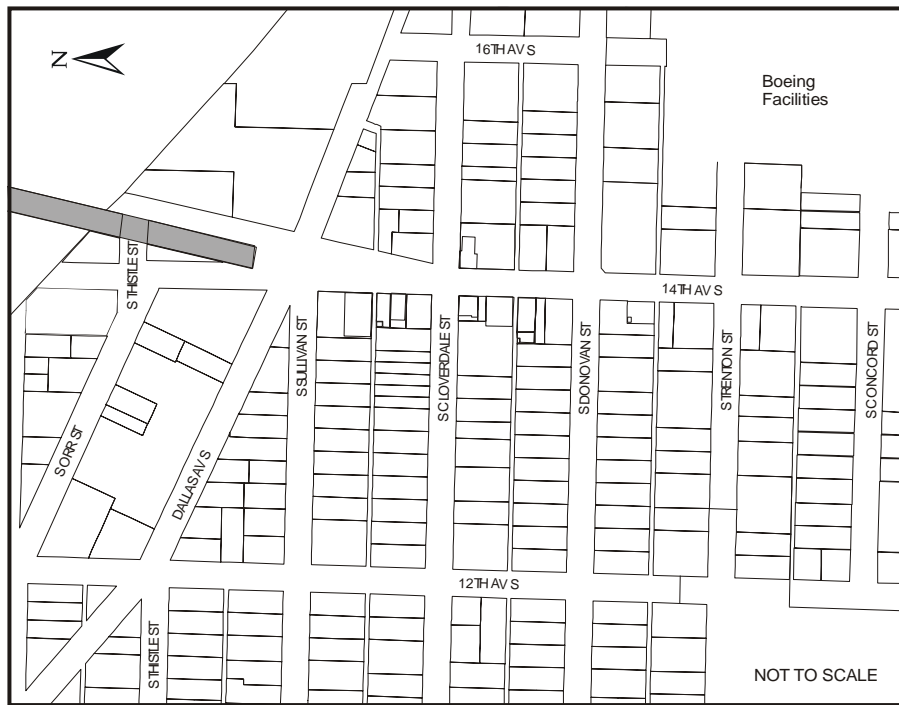
When closed, no vehicular, bicycle, or pedestrian traffic would be allowed to use the bridge. As a navigable waterway, the U.S. Coast Guard regulates bridges that span waterways such as the Duwamish Waterway. If the bridge were no longer operating, the U.S. Coast Guard regulations would require demolition and removal of the bridge. With no structures remaining, there would be no potential navigation obstructions in the Duwamish Waterway.

Under this alternative, there would be no change in the local street network except 14th and 16th Avenue S. would be dead-ended on both the south and north shores of the Duwamish Waterway. Figure 4 shows the existing local street network and Figure 5 shows the local street network following the removal of the existing bridge in the No Action Alternative. As the road does not currently provide direct access to the adjacent Boeing Company properties, the exact location of the road closure on the north side would need to be negotiated with Boeing as well as the owner of the railroad tracks immediately south of East Marginal Way S. In addition, the site of the removed bridge would be restored.

2.4.2.2 Rehabilitation Alternative

For the Rehabilitation Alternative, much of the existing bridge structure would need to be replaced. The existing steel trusses of the approach spans and the bascule leaves would be refurbished and reused. The mechanical and electrical operating systems would be refurbished and/or replaced. Studies have confirmed the existing bridge piers are gradually shifting because the foundation pilings were not originally driven to a sufficient depth. Although the initial goal was to rehabilitate the existing piers, the design team's structural analyses determined that the existing bascule piers and truss approach span piers must be replaced in order to ensure the long-term (approximately 75 years) integrity of the bridge. If the bascule piers were reconstructed, the longevity of the Rehabilitation Alternative would be similar to the expected minimum life of a new bridge structure.

For the Rehabilitation Alternative, the new bascule piers are proposed to be approximately the same size, location, and historic character as the existing piers (see Figure 6). To construct the new bascule piers, the bascule leaves and steel approach spans would need to be removed. The steel truss elements of the bridge structure would be taken to another site for repair, refurbishment, and/or painting before they are re-installed following the construction of the new piers. The concrete shafts or pilings supporting the foundations of the new piers would extend below the existing pilings to a depth beneath the riverbed where stable soils exist. The removal of the steel truss spans would also allow for replacement of the steel approach piers. The concrete approach spans and bridge abutments would be replaced and the bridge deck would be reconstructed. Like the existing bridge, there would be piers both on land and in the water. The first on-land piers would be only an estimated 20 feet from the top of the south embankment and the closest in-water piers would be approximately 20 feet from the top of the embankment. The piers on the north shoreline would extend through the



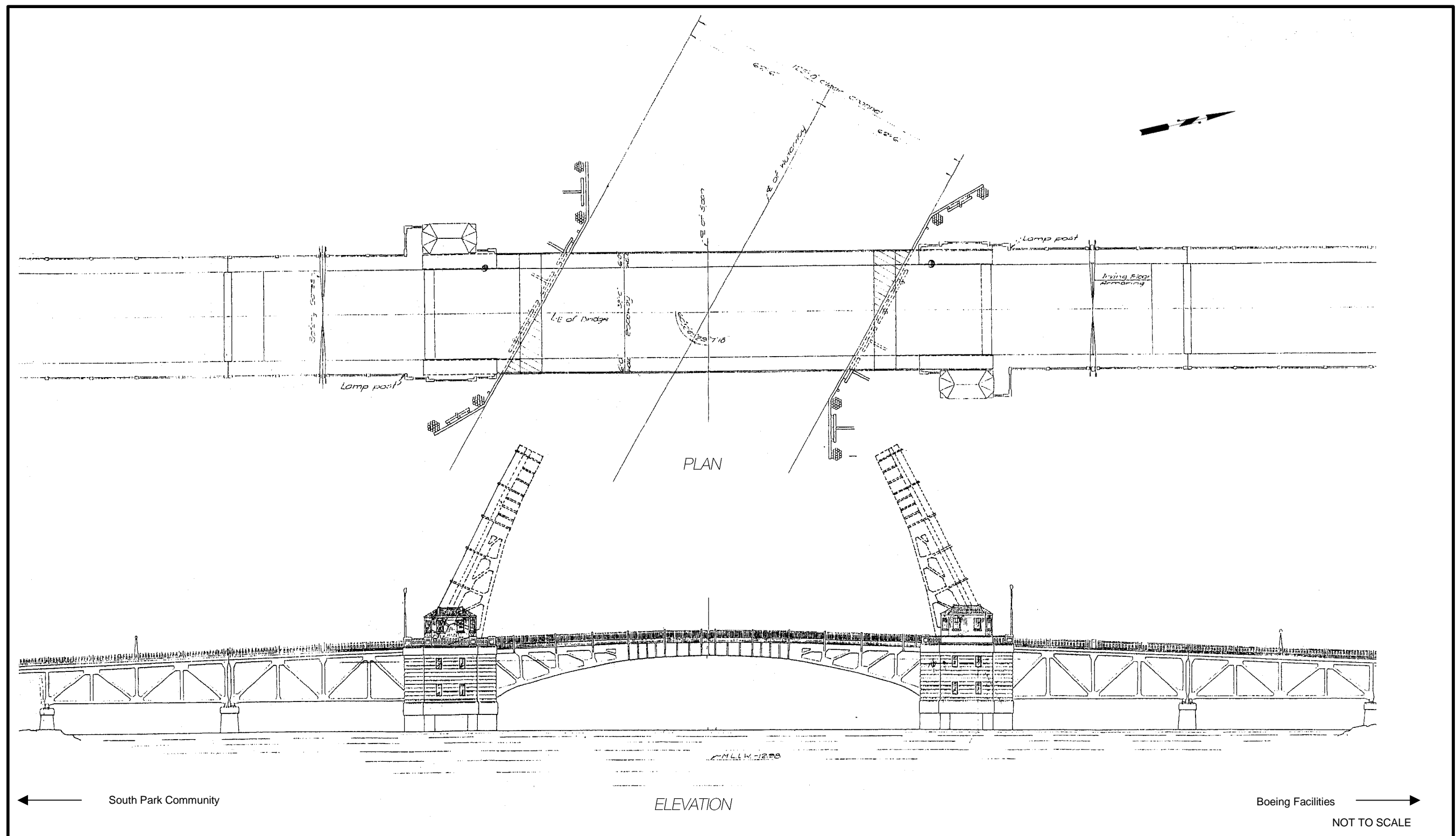


Figure 6
Rehabilitation Alternative

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existing Boeing dock. The conceptual engineering analysis also determined that the mechanical and electrical systems should be replaced. Any required construction activities, including replacement of the bridge railings, bridge tender towers, and lamp posts, would be done in a manner that preserves the historic character of the existing bridge to the greatest extent possible.

To meet current roadway design standards, the new bridge deck would remain approximately the same as the existing, but the pavement would be striped to accommodate three standard traffic lanes. Bicycle and pedestrian traffic would continue to be able to use the bridge via a 7.5-foot pedestrian path on each side of the bridge.

Following construction, the existing 118-foot navigable channel width would be preserved so existing waterway users would be able to continue to use the navigation channel to travel upriver of the South Park Bridge. The extended closure of the bridge during construction, however, would have a significant temporary impact on access to the South Park community.

Following construction, there would be only slight changes in the local street network. Figure 7 shows the local street network in the South Park community following construction activities for the rehabilitation of the existing bridge. The figure also shows the portion of the project alternative that would be elevated for the bridge structure, the bridge touch-down point, and the portion that would have surface roadway improvements. (For comparison, Figure 8 shows the local street network following the construction of the Bascule Bridge Alternative.) To improve vehicular safety, S. Sullivan Street would intersect Dallas Avenue S., which would become the main cross street intersection with 14th Avenue S. The 16th Avenue S. (immediately east of the bridge) intersection with Dallas Avenue S. as well as 14th Avenue S. may also need to be reconfigured. Access to points north via the South Park Bridge would be maintained.

2.4.2.3 Bascule Bridge Alternative

The Bascule Bridge Alternative would result in the construction of a new movable bridge immediately downriver of the existing bridge (see Figure 9). The bridge mechanism could be a Scherzer rolling lift type (no longer a common design for new movable bridges) or another type. The bridge length would be approximately 935 feet from abutment-to-abutment, not including roadway approaches. Road improvements would extend from a point just north of S. Cloverdale Street on the south side of the waterway and north to a point opposite the northeast corner of Boeing Building 2-15. The interior walls of the bridge abutments would be approximately 200 feet from the top of the embankment, or approximately 50 feet closer to the shore than the existing bridge. With fewer piers than the existing bridge, the first on-land piers of this alternative would be approximately 55 feet from the top of the south embankment at the shortest distance and the closest in-water piers would be approximately 65 feet away. On the north shoreline, the closest in-water piers would be approximately 95 feet from the top of the embankment and the closest on-land piers would be approximately 30 feet away. Unlike

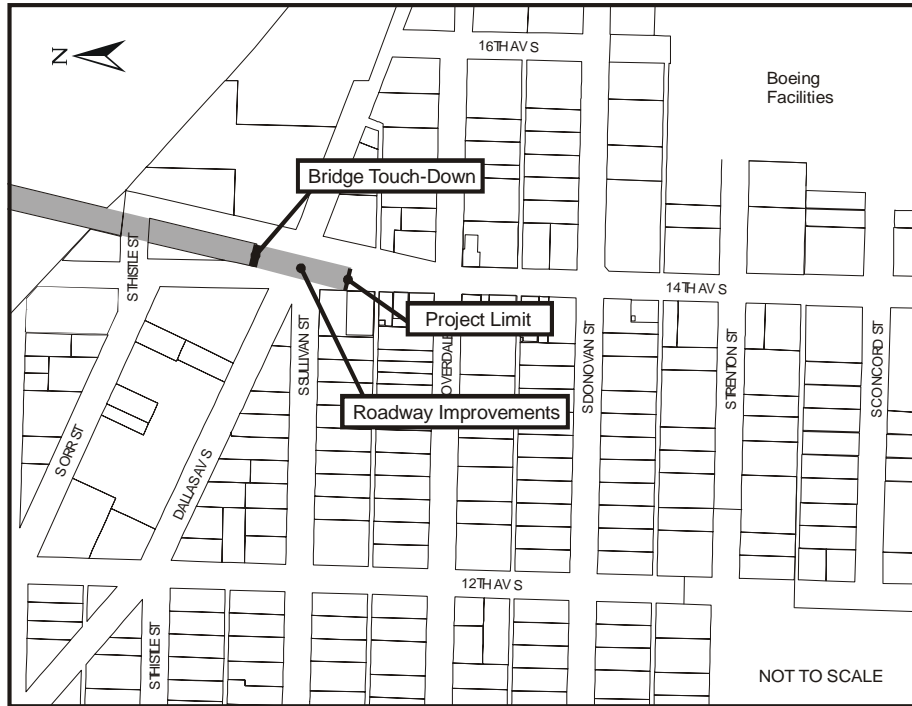


Figure 7
Rehabilitation Alternative Street Network

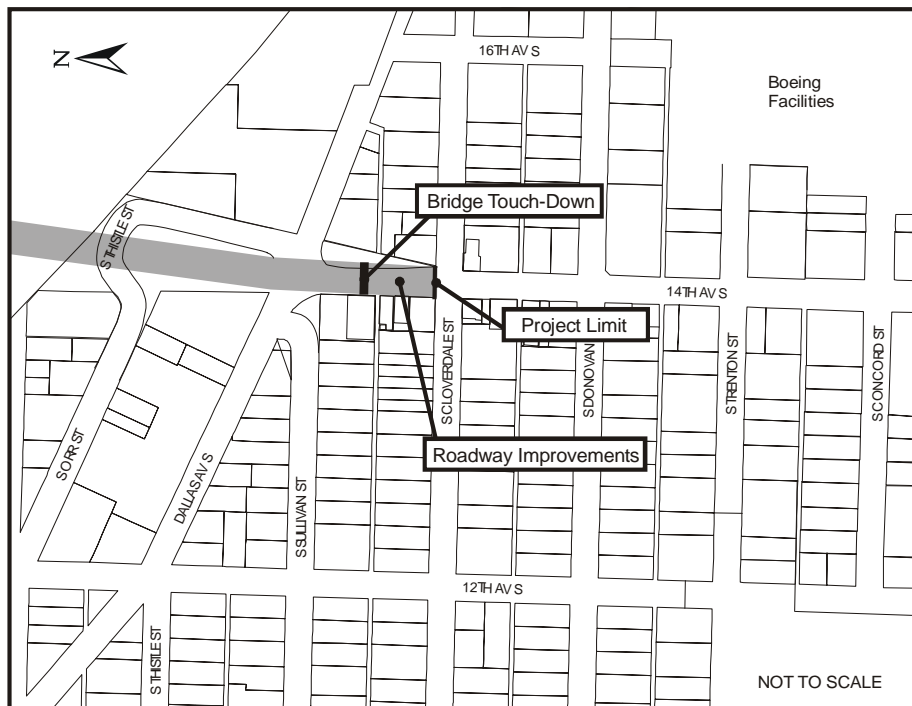


Figure 8
Bascule Bridge Alternative Street Network

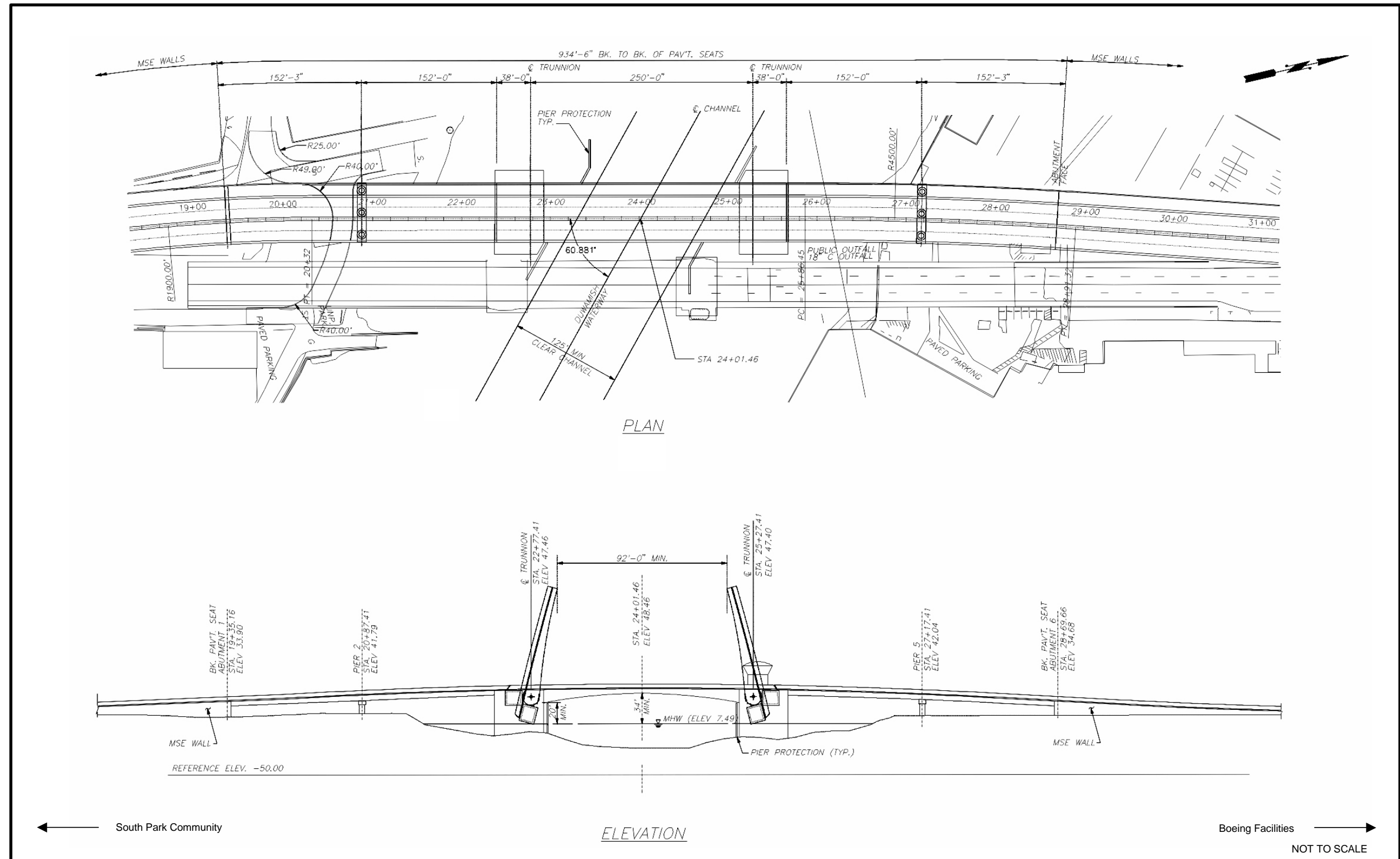


Figure 9
Bascule Bridge Alternative

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the existing bridge's grated bascule leaves, the bridge deck of the bascule leaves would be solid surface to improve vehicle traction and to control stormwater runoff.

Similar to the existing bascule bridge, this bridge profile would be approximately 34 feet above the Duwamish Waterway when in the closed position. The mid-section span would be comprised of two movable leaves that could be raised to open the bridge. The navigation channel would be approximately 125 feet in width (slightly greater than the existing 118-foot-wide channel). This two-leaf bascule bridge would not impose limitations to the height of waterway users passing the bridge, because the new bridge would be approximately 125 feet between the tips of the raised spans.

Following construction, there would be some change in the local street network (see Figure 8). S. Sullivan Street would be permanently closed or reconfigured to improve traffic safety and vehicular and truck turning movements from the new bascule bridge to Dallas Avenue S. S. Sullivan Street would no longer have direct access to 14th Avenue S. and the bridge. The intersection of 16th Avenue S. (immediately east of the bridge) and Dallas Avenue S. may also need to be reconfigured. To ensure adequate vertical clearance for vehicles, S. Thistle Street would need to be slightly realigned further to the north and closer to the Duwamish Waterway. This figure also shows the portion of the project alternative that would be elevated for the bridge structure, the bridge touch-down point, and the portion that would have surface roadway improvements. Access to points north via the South Park Bridge would be maintained. Following construction and transfer of the traffic to the new bridge, the existing bridge would be demolished and removed as described for the No Action Alternative.

2.4.2.4 Mid-Level Fixed-Span Bridge Alternative

The Mid-Level Fixed-Span Bridge Alternative would result in the construction of a non-movable bridge (see Figure 10). The bridge length would be approximately 1,660 feet abutment-to-abutment, not including roadway approaches. The interior walls of the abutments would be approximately 550 feet from the top of the Duwamish Waterway embankment, or 300 feet further setback than the existing bridge. The closest on-land piers would be approximately 85 feet from the south embankment and the closest in-water piers would be approximately 100 feet away. On the north side, the closest in-water piers would be approximately 130 feet from the top of the embankment and the closest on-land piers would be approximately 65 feet away. Road improvements would extend slightly north of S. Donovan Street and north to a point approximately 320 feet south of East Marginal Way S.

The mid-point of the bridge profile across the Duwamish Waterway would be approximately 65 feet above MHW of the Duwamish Waterway. The horizontal clearance would be approximately 125 feet, or slightly greater than the existing clearance. The vertical clearance, however, would restrict use of some waterway traffic, including some tugs and barges. Most vessels that currently pass the existing bridge would continue to be able to use the navigation channel. As described earlier in the discussion of the design considerations, the width of the new mid-level bridge is reduced

when the bike-pedestrian path is separated from the elevated approach roadway near the south side abutment. This design feature reduces land use and relocation impacts.

Following construction, there would be changes in the local street network (see Figure 11). (For comparison Figure 12 shows the local street network following the construction of the High-Level Fixed-Span Bridge Alternative.) The location of the south abutment and its vertical clearance would require modification of Dallas Avenue S. and S. Sullivan Street. S. Sullivan Street would likely be merged into Dallas Avenue S. just west of the new structure and a new roadway would be constructed under the new bridge. The alignment of this roadway would be slightly to the north to ensure it would have a minimum allowable vertical clearance. Neither street would have direct access to the new South Park Bridge. Figure 11 also shows the portion of the project alternative that would be elevated for the bridge structure, the bridge touch-down point, and the portion that would have surface roadway improvements. A retaining wall supporting the elevated approach roadway would be constructed immediately adjacent to properties fronting on the both sides of 14th Avenue S. for the majority of the distance between S. Sullivan Street and S. Cloverdale Street. Traffic would be able to access the bridge at S. Cloverdale Street, which would be raised a maximum of approximately 5 feet at the intersection to meet the descending grade of the bridge. This change in the intersection would allow traffic on S. Cloverdale Street to continue to have direct access to 14th Avenue S. though a retaining wall would also need to be constructed around the four corners of the intersection of S. Cloverdale Street and 14th Avenue S. due to the grade change. S. Orr Street would be closed due to the location of the support structures for the proposed separated pedestrian/bike path, which would allow bicyclists and pedestrians to descend from the bridge level to the street level. In addition, S. Thistle Street would be closed as it would no longer be able to connect to S. Orr Street. Following construction and transfer of the traffic to the new bridge, the existing bridge would be demolished and removed as described for the No Action Alternative.

2.4.2.5 High-Level Fixed-Span Bridge Alternative

The High-Level Fixed-Span Bridge Alternative is a non-movable bridge (see Figure 13). The bridge length would be approximately 2,332 feet abutment-to-abutment, not including roadway approaches. The interior walls of the abutments would be approximately 900 feet from the top of the Duwamish Waterway embankment, or 650 feet further set back than the existing bridge. The on-land and in-water piers of this alternative are approximately in the same location as proposed for the Mid-Level Fixed-Span Bridge Alternative. Road improvements would extend from S. Trenton Street and continue north to East Marginal Way S. This alternative would require minor modification of the 16th Avenue S. East Marginal Way S. intersection and of the existing railroad track crossing immediately south of this intersection.

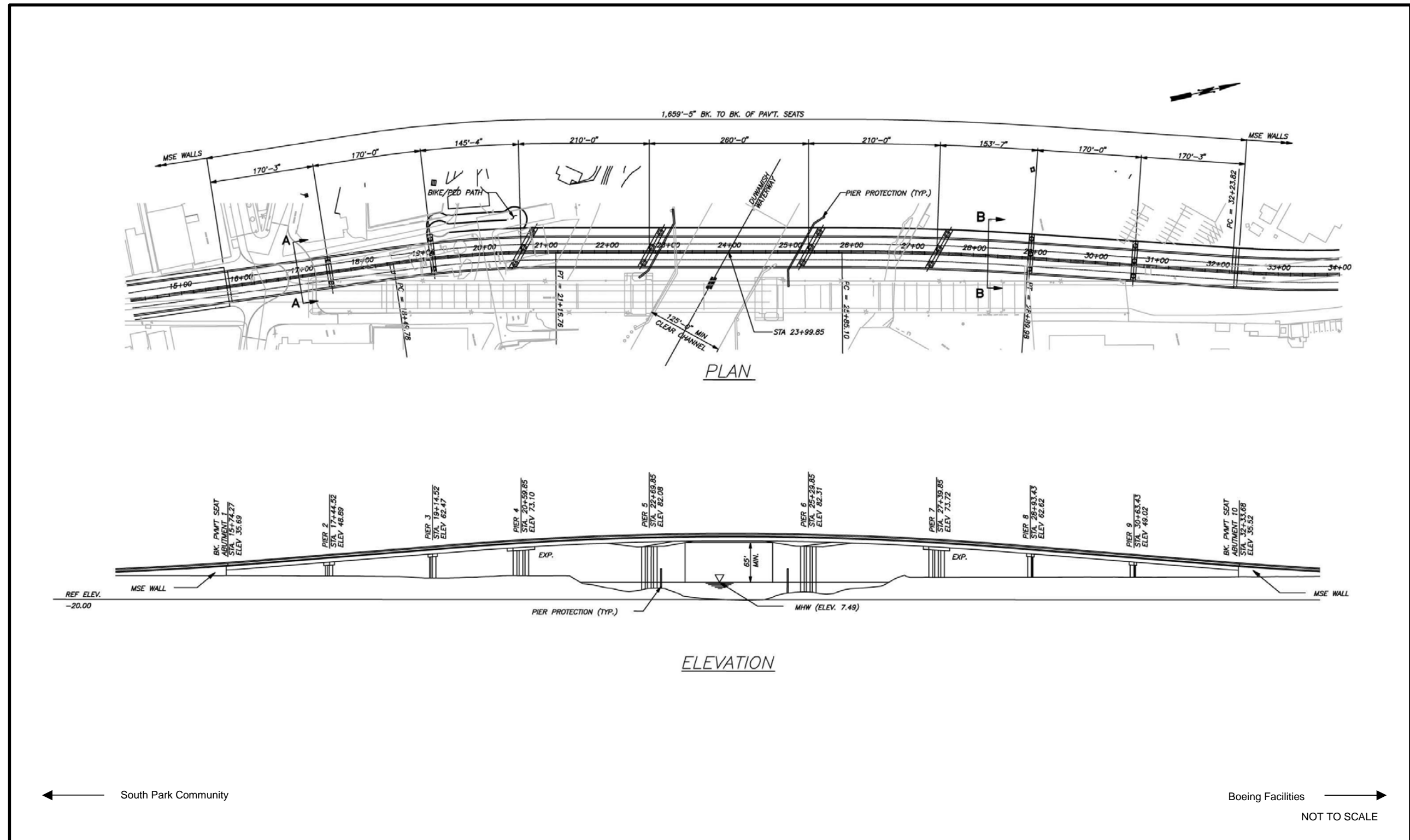


Figure 10
Mid-Level Fixed-Span
Bridge Alternative

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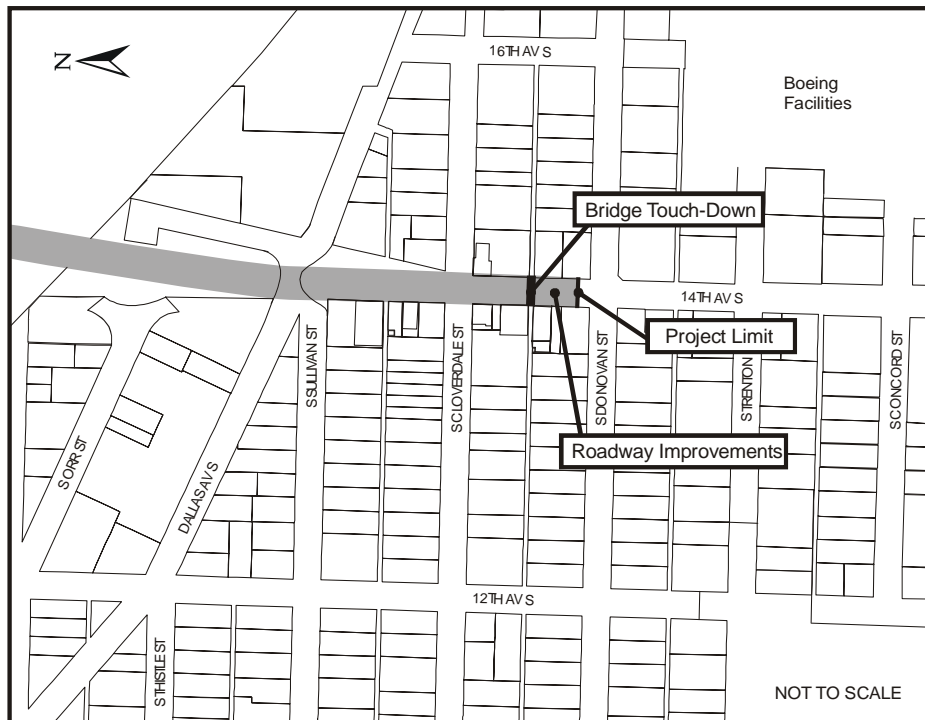


Figure 11
Mid-Level Fixed-Span Bridge Alternative Street Network

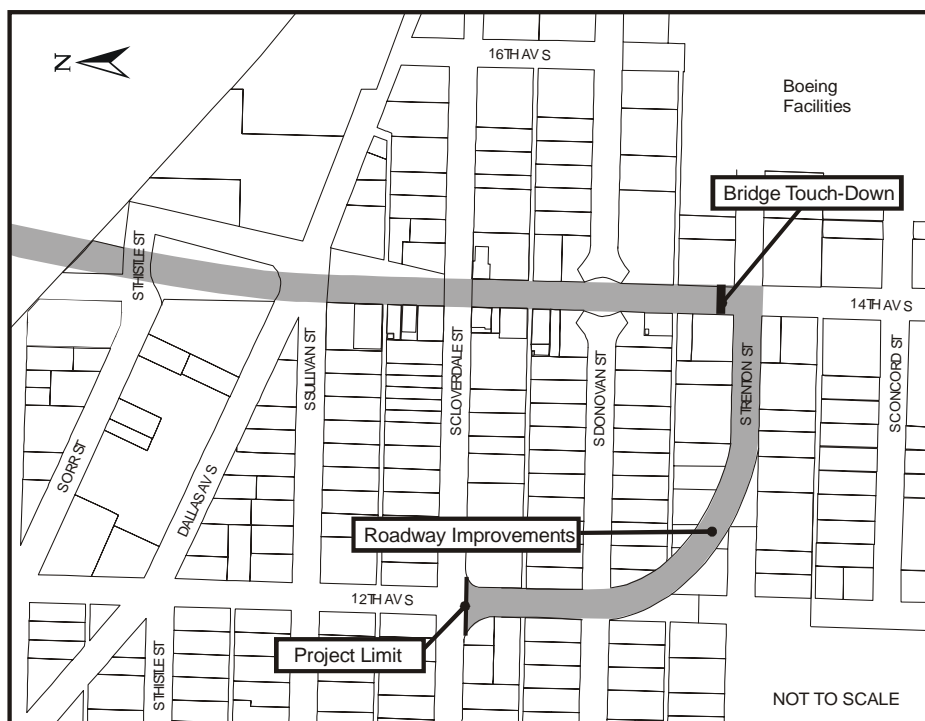


Figure 12
High-Level Fixed-Span Bridge Alternative Street Network

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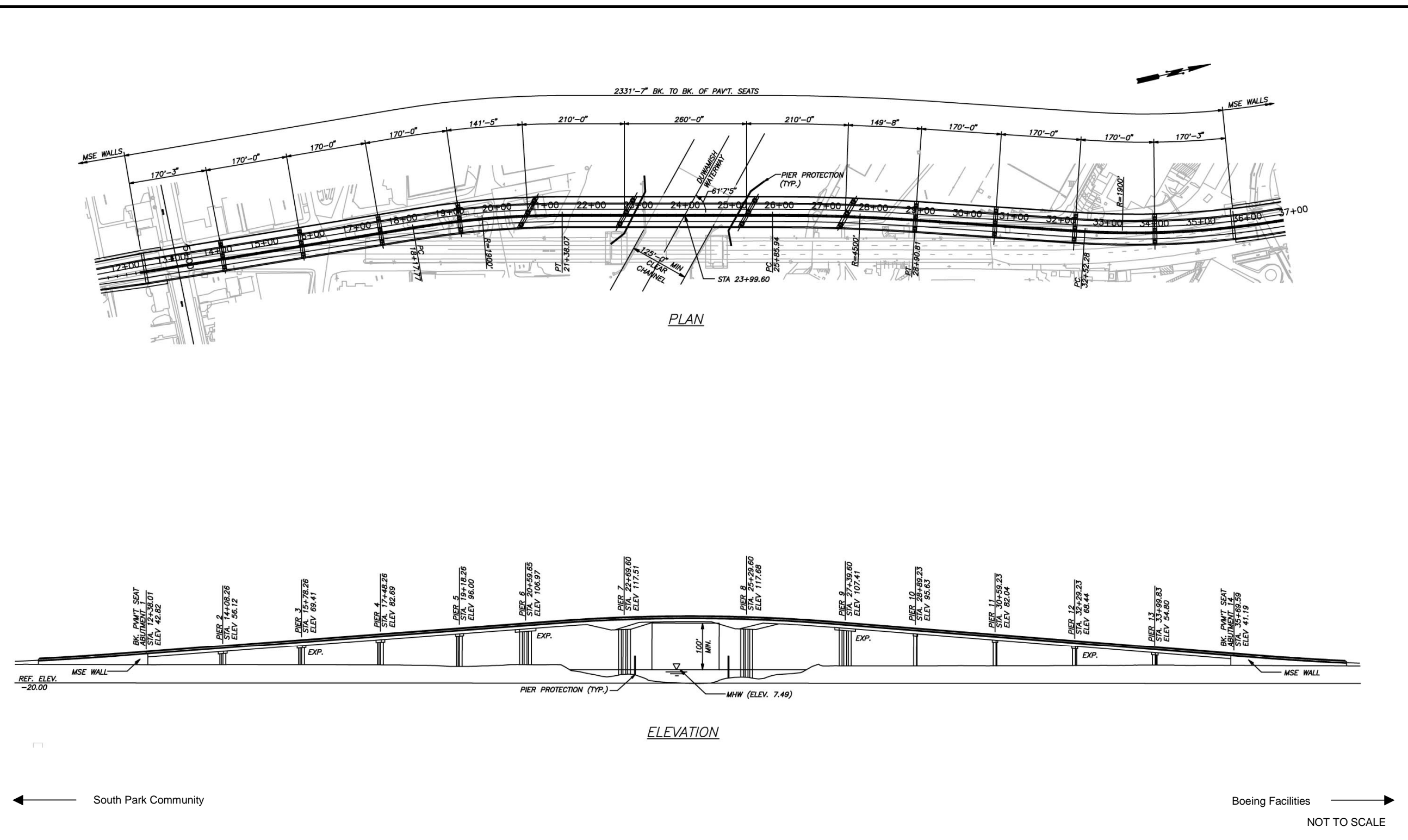


Figure 13
High-Level Fixed-Span
Bridge Alternative

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The bridge design would allow for approximately 100 feet of vertical clearance above the MHW of the Duwamish Waterway as requested by the U.S. Coast Guard. The horizontal waterway clearance for the navigation channel would be approximately 125 feet, which is slightly greater than the existing 118-foot clearance (fender-to-fender). The bridge's vertical clearance would not be expected to limit the height of boats and barges currently passing the bridge. However, vessels larger than those currently using the navigation channel might not be able to pass the bridge in the future.

Following construction, there would be numerous changes in the local street network as shown in Figure 12. The figure also shows the portion of the project alternative that would be elevated for the bridge structure, the bridge touch-down point, and the portion that would have surface roadway improvements. The bridge south abutment would require Dallas Avenue S., S. Sullivan Street, and S. Cloverdale Street to be converted to underpasses under the new South Park Bridge. A retaining wall supporting the elevated approach roadway would be constructed immediately adjacent to properties fronting on both sides of 14th Avenue S. for the majority of the two-block distance between S. Cloverdale Street and S. Trenton Street. S. Donovan Street would be closed at 14th Avenue S. due to obstruction from the bridge abutment and a vehicle turn-around would be constructed on either side of the abutment on S. Donovan Street. To allow traffic to access the new South Park Bridge, a new principle arterial roadway would need to be constructed between S. Trenton Street and 12th Avenue S. and road improvements would be required on 12th Avenue S. north to S. Cloverdale Street. This new route would allow traffic, trucks, and buses to continue to access the new South Park Bridge from S. Cloverdale Street via 12th Avenue S. and S. Trenton Street. Following construction and transfer of the traffic to the new bridge, the existing bridge would be demolished and removed as described for the No Action Alternative.

2.4.3 Construction Durations and Activities

Construction of a rehabilitation or replacement bridge for the existing South Park Bridge is planned to take approximately two to three years, including the demolition and removal of the existing bridge. Construction is anticipated to start within the next several years and opening of the rehabilitation or a replacement bridge is currently anticipated to occur by 2009. The actual time required for construction activities vary for each of the alternatives. Construction activities associated with the No Action Alternative involves only demolition of the existing bridge and restoration of the site. The construction period for this alternative would be the shortest of all alternatives, approximately 8 months. The other alternatives would additionally require rehabilitation or construction of a new replacement bridge. Anticipated construction durations (demolition of existing and construction of new) would be approximately 32 months for the Rehabilitation Alternative, 33 months for the Bascule Bridge Alternative, 20 months for the Mid-Level Fixed-Span Bridge Alternative, and 24 months for the High-Level Fixed-Span Bridge Alternative.¹⁴

¹⁴ Parsons Brinckerhoff. *South Park Bridge Project: Structural Alternatives Study*, November 2003.

From a construction perspective, the five project alternatives include three different types of construction activities. The No Action Alternative assumes the existing bridge condition would eventually require closure and removal of the bridge structures. Construction activities would focus on demolishing the existing bridge and restoring the project area. The Rehabilitation Alternative would require bridge closure for approximately 30 months for rehabilitation or replacement of various elements of the existing bridge. The Bascule, Mid-Level Fixed-Span, and High-Level Fixed-Span bridge alternatives would all result in constructing a replacement bridge approximately 80 feet downstream of the existing bridge. For these three alternatives, the new bridge would be constructed while the existing bridge continues to be operational. When the new bridge is connected to the existing road, there would be short-term temporary bridge closures. These closures could be limited to weekends or could extend for approximately one month, depending on the alternative. Once the new bridge is completed, traffic would be rerouted to the new bridge and then the existing bridge structure would be demolished in a similar fashion as described for the No Action Alternative.

Rehabilitation of the existing bridge would require closure of the existing bridge for approximately 30 months, although efforts would be made to minimize the closure period as much as possible. Reconstruction activities would begin as soon as possible after completion of design engineering and acquisition of construction permits. Traffic would be given advance notice to take alternate routes prior to closure of the existing bridge. The construction of a temporary dock and a construction staging area would be required on both banks of the waterway (see Figure 14). Construction of the new bascule piers would likely be the first major construction activity. This would entail removing the existing pier protection fenders, installing temporary supports for the bridge superstructure, removing the bascule leaves as well as the steel truss spans, installing cofferdams around the existing steel truss approach piers and bascule piers, and demolishing the existing piers.

The bascule leaves and steel truss approach spans would be removed from the construction site for refurbishment. Construction of the new piers would involve drilling shafts through the existing timber piles, constructing the pile cap, dewatering the construction area inside the cofferdam, constructing the upper portions of the pier, removing the cofferdam, and finally reconstructing the upper portions of the bascule pier and bridge towers. Workers would reconstruct the concrete approach spans and replace the abutments. Workers would also reconstruct the bridge deck and replace the mechanical and electrical systems used to operate the bridge. Replacement of the piers, bridge tender towers, bridge railings, and lamp posts would be done in a manner that would preserve the historic character of these features of the existing bridge.

Major construction activities and sequencing would be similar for the Bascule, Mid-Level Fixed-Span, and High-Level Fixed-Span bridge alternatives. The construction duration and the impact area for each of these three alternatives, however, would clearly differ. Following completion of design engineering, acquisition of construction permits, purchase of needed property, and relocation of residents and businesses, construction

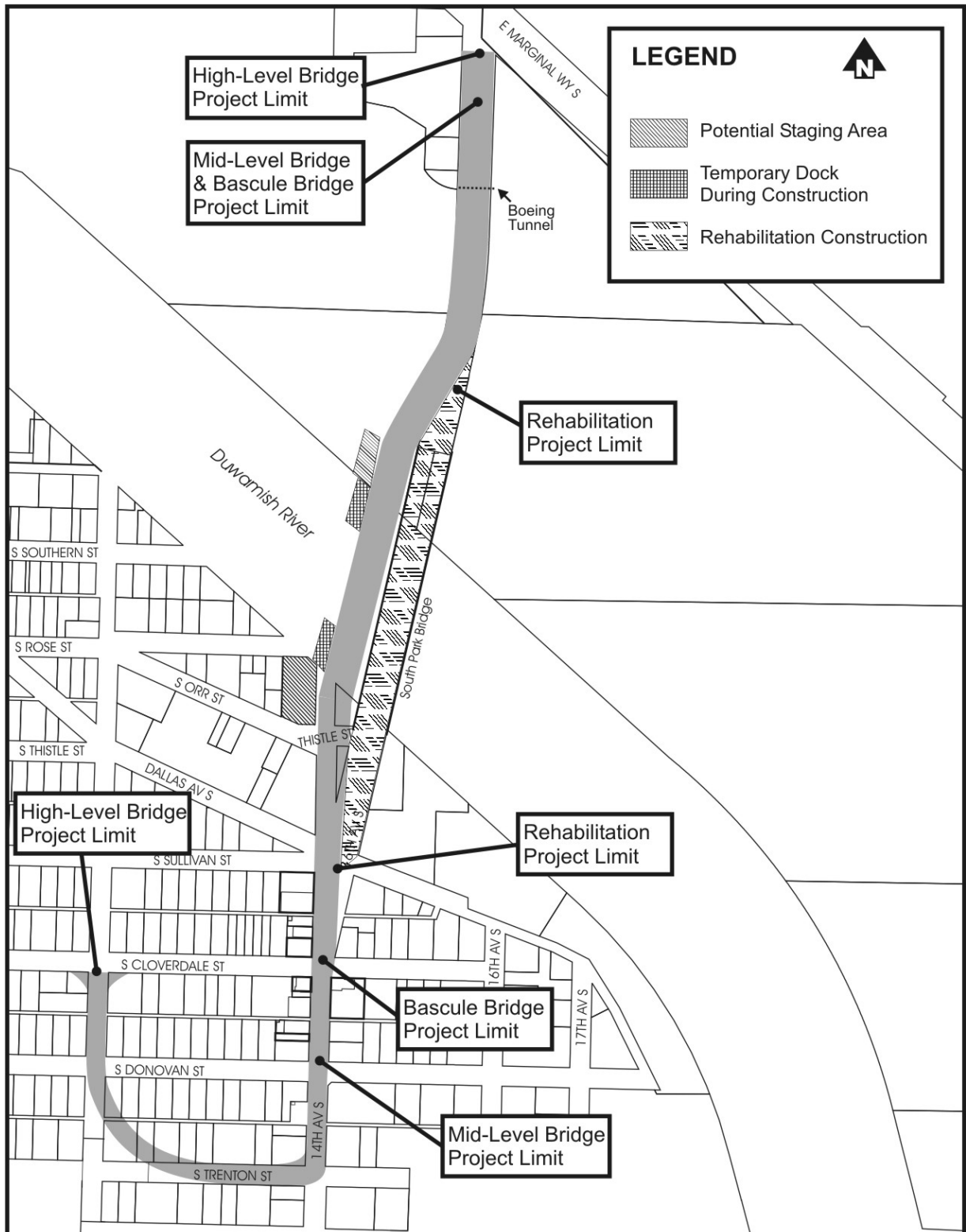


Figure 14
Proposed Construction Staging Areas

activities would begin. The first activities would include establishing the construction staging areas and constructing temporary docks with pilings on both sides of the waterway (see Figure 14).

Buildings affected by the construction activities would be demolished and utilities would be either temporarily or permanently relocated. To minimize traffic impacts, construction activities would begin with the construction of the in-water piers. Construction activities would progress landward from the central portion of each bridge alternative. Both in-water and on-land construction would begin with construction of the sub-structures (piers and abutment) and would be followed by placement of the superstructure (beams, deck, rails). On-land construction of the piers, abutment, retaining walls, and transition segments at either end of the bridge would likely require temporary closure of adjacent or nearby roads and rerouting of local traffic. If possible, these temporary closures would be limited to weekend and/or night times to minimize impacts to the community. Construction activities on the north and south portions of the new bridge structures could also occur either separately or concurrently. The last of the construction activities would be the construction of the new curb and gutter of the at-grade roadway, and paving the roadway to match the existing width of 14th Avenue S. Figure 14 shows the project limits, or start and end points, of construction activities for each of the project build alternatives.

For the rehabilitation and new bridge alternatives, new girders and other oversized materials would most likely be delivered to the project site by barge. Large cranes located on the barges or temporary docks would off-load the materials and place them in the nearby construction staging area. Removal of the existing bridge pier foundations and construction of the new bascule and steel truss piers would all require the use of cofferdams to isolate the construction activities. Construction of the new approach-span piers would use drilled shafts, which would likely incorporate the use of temporary casings to isolate the construction activities. This in-water work would be performed by equipment operated from the temporary docks or from barges.

Demolition of the existing bridge would involve disassembly and removal of the existing bascule leaves, superstructure, bridge piers, protection fenders, and abutment. Cranes would use the existing bridge structure and approaches as much as possible to remove the various elements of the bridge. Barges would likely be used to remove oversized materials. At this time, this demolition work is not planned to require construction of temporary docks or the acquisition or temporary use of property on the banks of the Duwamish Waterway for a staging area. Removal of the abutment foundations, however, would likely require temporary short-term closure of adjacent and/or nearby streets. During this time, local traffic would be temporarily rerouted from the immediate area.

Following the completion of the construction activities associated with any of the project alternatives, disturbed areas would be restored. Conceptual site restoration plans would be developed for each alternative based on additional consultation with resource agencies and other stakeholders.

2.4.4 Cost Estimates for the Alternatives

Cost estimates for each of the proposed project alternatives have been prepared by the project engineers (see Table 3).¹⁵ The cost estimate for each project alternative, including the No Action alternative, is broken down into the following components: 1) plans, specifications, and estimates (PS&E), 2) right-of-way costs, and 3) construction and construction-related costs. The total cost estimates are provided in 2003 dollars as well as estimated costs escalated for 2008, the anticipated mid-point of the project construction period. These cost estimates were calculated based on the conceptual engineering plans that were prepared for each of the alternatives.¹⁶

Clearly, the No Action Alternative is the least expensive as the existing bridge would not be rehabilitated nor would a new replacement bridge be constructed. The cost to remove the existing bridge structure would be approximately \$7,000,000 (2003 dollars). The estimated costs to either rehabilitate or replace the existing bridge structure range between approximately \$62 million to \$77 million in 2003 dollars. The least costly of the build alternatives is the proposed Mid-Level Fixed-Span Alternative, which is estimated to cost approximately \$61,523,000 to design and construct. The Rehabilitation Alternative is estimated to cost approximately \$63,930,000 and the High-Level Fixed-Span Alternative is estimated to cost approximately \$70,460,000. The most costly of the build alternatives is the Bascule Bridge Alternative, which is estimated to cost \$77,334,000. The escalated 2008 dollar estimates to design and construction the project alternatives are also shown in the table.

Table 3. Cost Estimates of the Project Alternatives

	PS&E	Right-of-Way	Construction	Total (2003 dollars)	Total (2008 dollars)
No Action	\$ 250,000	\$ 0	\$ 6,750,000	\$ 7,000,000	\$ 9 M
Rehabilitation	\$ 6,843,000	\$ 754,000	\$56,333,000	\$63,930,000	\$ 74 M
Bascule	\$ 8,253,000	\$ 3,655,000	\$ 65,426,000	\$ 77,334,000	\$ 90 M
Mid-Level Fixed-Span	\$ 4,235,000	\$ 6,377,000	\$ 50,911,000	\$61,523,000	\$ 71 M
High-Level Fixed-Span	\$ 5,261,000	\$ 15,310,000	\$ 49,889,000	\$ 70,460,000	\$ 82 M

Source: Parsons Brinckerhoff, November 2003.

¹⁵ Parsons Brinckerhoff. *South Park Bridge Project: Structural Alternatives Study*, November 2003.

¹⁶ Parsons Brinckerhoff. *South Park Bridge Project: Conceptual Plans*, June 2003.

2.5 Project Coordination

Coordination to date for the South Park Bridge Project has involved members of the public, a special community advisory group, and representatives of government agencies. Formal scoping was initiated through publication of the NEPA Notice of Intent and the SEPA Determination of Significance and Scoping Notice on February 7, 2002, and February 14, 2002, respectively. Separate scoping meetings were conducted in the South Park community for relevant agencies and members of the public. Both meetings were held on February 28, 2002. Written and verbal comments received through the scoping process were reviewed by King County and used in the development of the project alternatives and topics for environmental impact assessment.

A public involvement plan for the proposed South Park Bridge Project was developed during the initial stages of project planning. The Project Advisory Committee (PAC) and the Community Advisory Group (CAG) reviewed this document and provided comments to King County. The first public involvement efforts began prior to the formal scoping period. A public workshop was held in the South Park community on January 17, 2002. At this meeting, the nine preliminary project alternatives were presented. A second public workshop was held on June 19, 2002. At this meeting, the five proposed project alternatives were presented. Members of the public were encouraged to provide comments at both of these meetings. To facilitate participation and input from Hispanic persons living in the community, a bilingual translator attended all meetings. In addition, handouts and newsletters for the project were published in English and Spanish, and public notices were published in “Siete Dias”, a local Spanish-speaking newspaper. Future opportunities for public involvement are also planned, including a public hearing and workshop following publication of the Draft Environmental Impact Statement in 2004.

Establishing a CAG was a significant component of the public involvement plan. A total of 17 individuals were chosen to participate in the CAG to represent community stakeholder interests and public concerns. The CAG meets periodically to be briefed on the progress of the project and to provide input to the South Park Bridge project team. Again, a bilingual English-Spanish translator attends the meeting to facilitate communication with Spanish-speaking individuals on the CAG. To date, CAG meetings have been held on April 10, May 21, June 4, June 11, and October 29 of 2002 and on January 7 and November 18, 2003. Additional CAG meetings are planned for the future.

As part of the environmental review process, King County periodically meets with the Project Advisory Committee (PAC) to give a status report of the project, answer questions, and to solicit comments. This committee is comprised of members of various agencies that have potential jurisdiction over the proposed South Park Bridge Project. The committee is the Interdisciplinary Team (IDT) required under NEPA implementation guidelines and provides technical support to King County staff. To date, the PAC has met on January 10, February 20, May 9, May 23, and October 10 of 2002. Coordination with the PAC is planned at critical future steps in the environmental review process.

A non-scientific survey was also conducted of South Park businesses located on 14th Avenue S. during the late spring of 2003.¹⁷ The goal of the survey was to help assess potential impacts to businesses, especially minority-owned and –operated (employees) businesses. The survey respondents were also asked to identify their particular concerns about the proposed rehabilitation or replacement of the existing South Park Bridge. A total of 18 businesses were successfully surveyed. Spanish and Vietnamese translators were provided, as needed, to assist business representatives understand and respond to the questions. In addition, the data was used to assess the potential effects displaced businesses and jobs would have on the South Park community. The analysis of the survey findings are discussed in detail in the Economic, Social, and Relocation technical reports supporting the analysis in the EIS.

As key issues have arisen during development of the project alternatives and in assessing potential environmental impacts, special meetings have also been held with key stakeholders and organizations in the South Park community, as well as with other government agencies and jurisdictions with an interest in the project. For example, on December 3, 2002, King County met with owners of property along 14th Avenue S, and information booths were set up at the Sea-Mar Community Health Center-sponsored annual Fiesta Patrias on September 14, 2002 and at a family night event held at the Concord Elementary School on September 27 and November 22 of 2002. Periodic coordination meetings have also been held with representatives of the City of Seattle and the City of Tukwila, and other government agencies. These coordination activities will continue to occur on an on-going basis as the EIS is prepared and finally adopted.

¹⁷ Parsons Brinckerhoff. *South Park Bridge Project: Survey of 14th Avenue South Businesses*, August 22, 2003.

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3.1 Regulatory Database Review

A regulatory data search was conducted consistent with standard guidance established by the American Society for Testing and Materials (ASTM), the WSDOT, and the FHWA. Environmental Data Research, Inc. (EDR) was contracted to provide a comprehensive search of existing environmental regulatory agency databases for known or suspected environmental concerns within the study area. The EDR report includes a list of databases searched, a statistical profile indicating the number of properties within the study area, selected detailed information from federal and state lists, and maps illustrating the identified sites of interest or concern within the project area. Flagged sites are located on focus maps provided by EDR. See Appendix A for the full database list and results of the EDR database research.

3.2 Historical Research

To identify potential sites of environmental concern not included in the EDR report, available information was reviewed to identify sites that historically had operations with potential environmental concerns. Historical research efforts were directed toward developing an understanding of the types of industries that existed within the study area, chemicals of concern associated with these industries, and potential waste streams from these industries.

An inventory of historical land use was compiled using Walker and Associates aerial photographs (1936, 1946, 1956, 1968, 1977, 1985, and 1997), Sanborn Fire Insurance maps, City of Seattle Department of Construction and Land Use (DCLU) permit files and Metsker Map files. The purpose of this review was to characterize land use activities within the project area over the past 50 years and in some cases over 75 years.

3.3 Data Validation

Based on the results of the EDR report and historical research, records were requested from the EPA, WADOE, and the Seattle DCLU. The focus of the review was to identify the nature and extent of known contamination, completed remedial activities (if any), and the effect the sites may have on current environmental conditions within the project area.

A windshield survey of the study area, as well as site visits from publicly accessible areas, were conducted for all properties along the alternative alignments. The windshield surveys and site visits focused on sites with known and/or suspected environmental concerns that could potentially affect acquisition or construction decisions. Results of the windshield survey were submitted to Parsons Brinckerhoff on April 23, 2002. The site visit surveys were limited to features readily observed from public access corridors and did not include entering or viewing conditions within buildings. Information regarding the following concerns was recorded in field notes.

- Presence of improvements on the site

- Location, topography, and usage of open areas
- Indications that suggest the presence of underground storage tanks (USTs) and above-ground storage tanks (ASTs), including observable patches on asphalt or concrete
- Indications of buried pipelines, drums, hazardous and solid waste disposal, soil staining, and distressed vegetation
- Suspected asbestos-containing material (ACM) and lead-based paint (LBP) issues
- General housekeeping observations
- Adjacent and nearby properties with a potential to contribute to on-site contamination.

In addition to considering this information and applying the methodology described above, the physical setting of the study area was assessed, including soils, drainage features (natural or otherwise), depth to groundwater, and the rate and direction of groundwater flow. Topographic, geologic, and groundwater occurrence maps were reviewed to evaluate migration potential for released contaminants in the project area.

Similar criteria were applied to evaluate parcels identified for acquisition under each alternative. For these properties, KCDOT's environmental and property personnel will need to examine information on the probable nature and extent of contamination related to past and current operations to assess the potential for inheriting environmental liabilities. Sites located outside of the alternative rights-of-way were also reviewed based on the potential for contaminant migration from these sites to area properties located within the right-of-way.

This evaluation considered available design information. Sites were subjected to detailed analysis if the following considerations occurred:

- The site is within the area of ground disturbance of an alternative and contains possible or known soil, groundwater, and sediment contamination
- The site is located hydraulically upgradient from the construction area and has the potential to release groundwater contaminants which could be encountered during project construction
- The site is topographically upstream from the construction area, lies along a potential surface drainage pathway for contaminants, and is linked to a South Park Bridge Project alternative construction area

3.4 Site Screening Summary

The study area encompasses a one-mile radius area from the center of the existing South Park Bridge span. This area includes all properties within this area, including several past

and present industrial, commercial, and residential properties. In total, 58 sites were included in the initial site screening process. Of the 58 sites, 43 sites were eliminated from further consideration because 1) they were located downgradient of or too far away from the planned alternatives; and/or 2) there were no reported environmental concerns that would affect planned alternatives. See Appendix B for the Hazardous Materials Initial Site Assessment data summary.

A total of 15 sites were retained for in-depth analysis. The consultant evaluated the probable extent of contamination, in relation to applicable remedial approaches, to consider whether remediation on the site could be “reasonably predictable” or “substantially contaminated.” Reasonably predictable sites are sites where recognized environmental conditions are known based on existing data or can be predicted based on site observations, previous experience in similar situations, or by using best professional judgment. These sites are typically small, the contaminants are localized and are relatively non-toxic, and abatement/remediation activities are routine (e.g., asbestos abatement or petroleum hydrocarbon-contaminated soil remediation). Substantially contaminated sites are typically larger or have large volumes of contaminated materials, have a long history of industrial or commercial land use, and the contaminants are persistent, difficult or expensive to manage. There may be a considerable amount of environmental data available for substantially contaminated sites; however, the cost liability associated with these sites can be significant. As discussed below, three of the 15 sites are substantially contaminated (see Table 4) and the remaining 12 sites are reasonably predictable (see Table 5). (See Appendix B for the initial site assessment data, the conceptual screening summary, and site photographs.) A site number is assigned to each property, which correlates with the site map (see Figure 15).

Table 4. Substantially Contaminated Properties

Site Number	Owner/Operation	Address	Rationale
5	Boeing's Plant 2 RCRA Corrective Action	Plant 2 North Campus Area	Ongoing RCRA Corrective Action cleanup of soil, groundwater, and sediments impacted by PCB, chlorinated solvents, and metals.
A	Lower Duwamish Waterway Superfund Site (Eastern)	Sediments within the Duwamish Waterway	Listed on the National Priority List Superfund site for sediments in the Duwamish Waterway contaminated by PCBs, PAHs, chlorinated solvents, and metals.
B	Lower Duwamish Waterway Superfund Site (Western)	Sediments within the Duwamish Waterway	Listed on the National Priority List Superfund site for sediments in the Duwamish Waterway contaminated by PCBs, PAHs, chlorinated solvents, and metals.

Table 5. Reasonably Predictable Properties

Site Number	Site	Address	Rationale
8	Boat Repair Yards	1289 S. Rose St.	Years of boat repair activities conducted in the upland areas next to the Duwamish Waterway. Heavy staining of the ground seen in several aerial photographs. Surface drains appear to connect to the Duwamish. Use of petroleum hydrocarbons, chlorinated solvents, metals, and Tributyltin.
9	Boat Repair Yards	1400 S. Thistle St.	Same as above
10	Boat Repair Yards	8456 14 th Ave. S.	Same as above
11	House with Junk Yard	1401 S. Thistle St.	The backyard of the property is covered with old cars and trucks. There is heavy staining of the exposed surface. Several hundred plastic containers and drums are located at the site.
17	Salon Expo	8520 14 th Ave. S.	Listed as Leaking Underground Storage Tank (LUST) site by WADOE. Age of building indicates possible ACM/LBP contamination. Former site operator conducted an independent voluntary cleanup at site (without WADOE oversight and/or approval).
18	Herb's Repair	8524 14 th Ave. S.	Listed as a LUST site by WADOE. Age of building indicated possible ACM/LBP contamination. Poor housekeeping activities noted on site.
25	Napoli Pizzeria	8600 14 th Ave. S.	Site is a proposed project construction laydown yard. Pre-purchase environmental site assessment needs to be conducted per industry standards.
29	Babia's Sewing	8621 14 th Ave. S.	Former auto repair and service station listed as a LUST site by WADOE. Age of building indicates possible ACM/LBP contamination. Former site operator conducted an independent voluntary cleanup at site (without WADOE oversight and/or approval).
30	Former Gas Station Dry Cleaner	8620 14 th Ave. S.	Miscellaneous storage of abandoned chemical containers on site. Age of building indicates possible ACM/LBP contamination. Long history of dry cleaning operation (1956s to mid-1990s) and vent pipes observed from back of structure indicate potential environmental issues.
32	R.L. Cook Sales and Supply Warehouse	8700 14 th Ave. S.	Former Chevron service station listed as a LUST site by WADOE. Former site operator conducted an independent voluntary cleanup at site (without WADOE oversight and/or approval).
35	A.D. Swayne Company	8456 14 th Ave. S.	Former operation conducted an independent voluntary cleanup at site (without WADOE oversight and/or approval).
49	Spencer Industries	8721 Dallas Ave. S.	Aircraft part manufacturing facility. Chlorinated solvents released from this facility have contaminated the groundwater. Potential for the migration of contaminated groundwater to project site.

This chapter describes the methods used to identify substantially contaminated and/or reasonably predictable properties that could be affected by the South Park Bridge Project alternatives.

The study area includes properties both within and outside of the immediate area that would be affected by the proposed alternatives for the South Park Bridge. These alternatives could potentially affect engineering designs, acquisition decisions, and construction activities associated with a project alternative. The environmental regulatory database search was conducted for all sites within a one-mile radius from the mid-span of the existing South Park Bridge.

The study was accomplished by performing the following sequential tasks:

- Identifying available local, state, and federal databases to identify potential contamination sources that could impact the project site
- Reviewing publicly available records at local environmental agencies, as necessary, to obtain supplemental information regarding present and past environmental conditions and incidents at the project site and properties within the study area that, if contaminated, could impact the project
- Interpreting the history of the project site using available aerial photographs and other historic information sources
- Reviewing available geologic literature and topographic maps to determine surface drainage paths as well as groundwater depth and flow direction below the study area
- Conducting site visit surveys from public areas within the project area to observe site features and potential contamination sources, which could impact the project site
- Screening all sites based on their locations relative to proposed construction areas as well as site-specific environmental data available in regulatory agency files. The initial screening process focused on environmental conditions that could represent a potential-to-significant effect resulting from the South Park Bridge Project, including design, acquisition, or construction.
- Summarizing environmental conditions at the primary known or suspected contaminated sites for each of the bridge alternatives
- Evaluating potential impacts that known or suspected contamination may have on project implementation, including property acquisition, construction, and costs
- Identifying potential measures and options for mitigating potential impacts of hazardous substances to the proposed project.

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This chapter provides a characterization of the affected environment for sites thought to have a reasonable potential for contamination. An overview of the study area's land use history is presented, followed by a discussion of the physical environment. Known and suspected environmental concerns of 14 sites are then summarized. The site summaries combine historical, regulatory, and site survey findings into a short narrative.

5.1 Historical Overview

Prior to the 20th century, the Duwamish River meandered widely through a valley consisting of floodplains, freshwater wetland, and tidal marshes before emptying into Elliott Bay. Flooding was a common natural occurrence in the river valley. To facilitate navigation and industrial development, the Duwamish River was straightened and dredged by the Army Corps of Engineers (ACOE) creating the LDW. Dredging in 1903-1905 created the East and West waterways; and dredged material from the river was used to create Harbor Island (Weston, 1993). Since about 1916, the river has been dredged and channelized from Turning Basin 3 (upstream of the South Park Bridge) to the southern tip of Harbor Island. Most of the upland areas adjacent to the LDW have been heavily industrialized for many decades. The LDW also is the receiving body for discharges of many different types of industrial and municipal wastewater. Some of these waste streams have been rerouted or discontinued, but there are still numerous storm drains and combined sewer overflows that continue to discharge to the LDW.

Land use within the South Park Bridge Project area has generally remained the same for the last 50 to 60 years. Land use in the area between East Marginal Way S. in Tukwila and the intersection of S. Trenton Street and 14th Avenue S. has historically been mixed land use, including heavy manufacturing, light industrial operations, commercial services, and residential properties.

Early aerial photographs from the 1930s indicate the area between East Marginal Way S. and the existing South Park Bridge was mixed use. Aerial photographs show some farmland, heavy industrial and aircraft operations, and scattered residences. The area of South Park from mid-span of the existing South Park Bridge to S. Trenton Street was a developed community in the 1936 aerial photograph. Commercial buildings, gas stations, and residences lined both sides of 14th Avenue S. A majority of these structures are present today along 14th Avenue S.

The north shore of the LDW in the project area became more industrialized during and in the years following World War II. The north side of the LDW near the South Park Bridge Project is made up of aircraft manufacturing facilities and operations that expanded from the mid-1930s to the present. Industrial development replaced farmland. The number of commercial establishments in the South Park community appeared to parallel the industrial development along the LDW.

5.2 Physical Environment for the Lower Duwamish Estuary

5.2.1 Geology

The Duwamish River estuary was carved by glacial ice and subsequently infilled by river sediment. The lower boundary of that geologic trough has been reached sporadically by deep borings. Data from borings indicate that the trough lies roughly 100 feet below the modern ground surface within the project area, and generally shallows to the south and towards the east and west valley walls. The boundary of these deposits is marked either by bedrock (where present to the south) or by very dense sediment that has been glacially overridden.

Above this boundary, the geologic history of the area suggests that a sequence of estuarine deposits, typically fine sands and silts with shells, should be found and should progress up into a more complexly interbedded river-dominated sequence of sand, silt, and gravel (Weston, 1999). The upper part of the river-deposited sediment is comprised of the classic overbank deposition of fine sand and silt, colonization by marshland plants, and occasional erosion and refilling by coarser sediment associated with the migrating Duwamish River (Pentec Environmental, 2001). The upper sediment beds contain the unconfined shallow aquifer of the Duwamish River estuary (Weston, 1999).

5.2.2 Groundwater

The general groundwater flow direction in the estuary is toward the waterway, but direction may vary locally depending on the nature of subsurface material and proximity to the waterway where tidal action can alter groundwater flows. Although high tides can cause temporary groundwater flow reversal, the net groundwater flow direction is toward the waterway. Areas affected by tide-related temporal groundwater flow direction are generally within 150 meters of the waterway. In those areas, the density difference between the freshwater groundwater aquifer and the saltwater tends to focus the outflow of the surficial aquifer into the intertidal area. Many chemicals experience enhanced natural attenuation in these tidally fluctuating groundwater zones due to the active biogeochemical processes taking place.

Alluvial deposits within the surficial aquifer of the Duwamish Valley are generally fine-grained (fine sand and silty sand) with low to moderate permeabilities (Pentec Environmental 2001). Based on limited studies at industrial sites, groundwater gradients and velocity were low. Although sand and gravel strata with higher permeabilities may occur in localized areas, thick sections of silt and clay are more common. Permeability of fill varies greatly over short distances and is generally greater than overlying or adjacent natural deposits. Permeability of the soil in the unsaturated zone of the aquifer is moderately slow. The depth to groundwater in the project area varies from the ground surface along the shore of the LDW to about 12 feet below ground surface (bgs), depending on location.

5.2.3 Sediments

Bottom sediment composition throughout the LDW range from sands to mud, depending on the sediment source and current speed. Sediment typically consists of slightly sandy silt with varying amounts of organic detritus. Coarser sediments are present in nearshore areas adjacent to combined sewer outfalls (CSO) and storm drain discharges (Weston, 1999). Finer-grain sediments are typically located in remnant mudflats, along channel

sideslopes, and within portions of the navigation channel. Main channel sediments are predominantly sands, whereas sediments toward the mouth are predominately fine-grained silts. Because of the affinity of organic compounds for fine-grained sediment with high organic carbon content, sediment type is an important indicator of areas where chemicals and hazardous materials may accumulate. Transport of sediment in the LDW is limited in these tidally fluctuating groundwater zones due to active biogeochemical processes taking place (Pentec Environmental, 2001).

5.3 Site Specific Environmental Concerns

The 15 sites of concern are located in or adjacent to the ground disturbance areas of the proposed project alternatives. Figure 15 is a site map identifying the location of these specific sites of concern. These 15 sites, comprised of both substantially contaminated and reasonably predictable properties, are discussed below. Each site is identified by a site name and a site number corresponding to the location map.

5.3.1 Substantially Contaminated Properties

Boeing's Plant 2 (Site 5)

Boeing's Plant 2 is a 107-acre site covered with buildings and pavement developed from the mid-1930s as an aircraft manufacturing facility. Prior uses of portions of the Boeing Plant 2 site within the South Park Bridge Project area include: 1) farmland; 2) a bulk oil storage facility; 3) a metal enameling plant; and 4) a U.S. Army motor pool and maintenance shop. Known chemicals and metals from Boeing's operations have migrated to soil and groundwater beneath the Plant 2 facility and to sediment along the Plant 2 shoreline of the LDW. In 1994, EPA and Boeing signed an Administered Order of Consent, which required Boeing to investigate and perform corrective action at Plant 2 under RCRA (Weston, 1998).

The LDW was added to the EPA National Priorities List (NPL), also known as Superfund, on September 13, 2001. Under Superfund regulations, EPA requires that a remedial investigation and feasibility study (RI/FS) be conducted for all listed sites. A Remedial Investigation identifies areas that should be cleaned up because they pose an unacceptable risk to human health or the environment. A Feasibility Study proposes a number of alternative approaches to clean up the areas, and analyzes and compares these alternatives.

The key parties involved in the LWD RI/FS are the City of Seattle, King County, the Port of Seattle, and Boeing. Together with the EPA and WADOE, these parties are known as the Lower Duwamish Waterway Group (LDWG). This group agreed (in an Administrative Order of Consent) to conduct the RI/FS for the LDW in two phases. Phase 1 is a thorough review of what is already known from previous studies of contamination in the LDW. LDWG members are planning early cleanup actions to target areas of known sediment contamination. These early cleanup actions are of great interest to the South Park Bridge Project because the Superfund cleanup process can take many years, but these known sites can be addressed rapidly to reduce impacts to the environment.

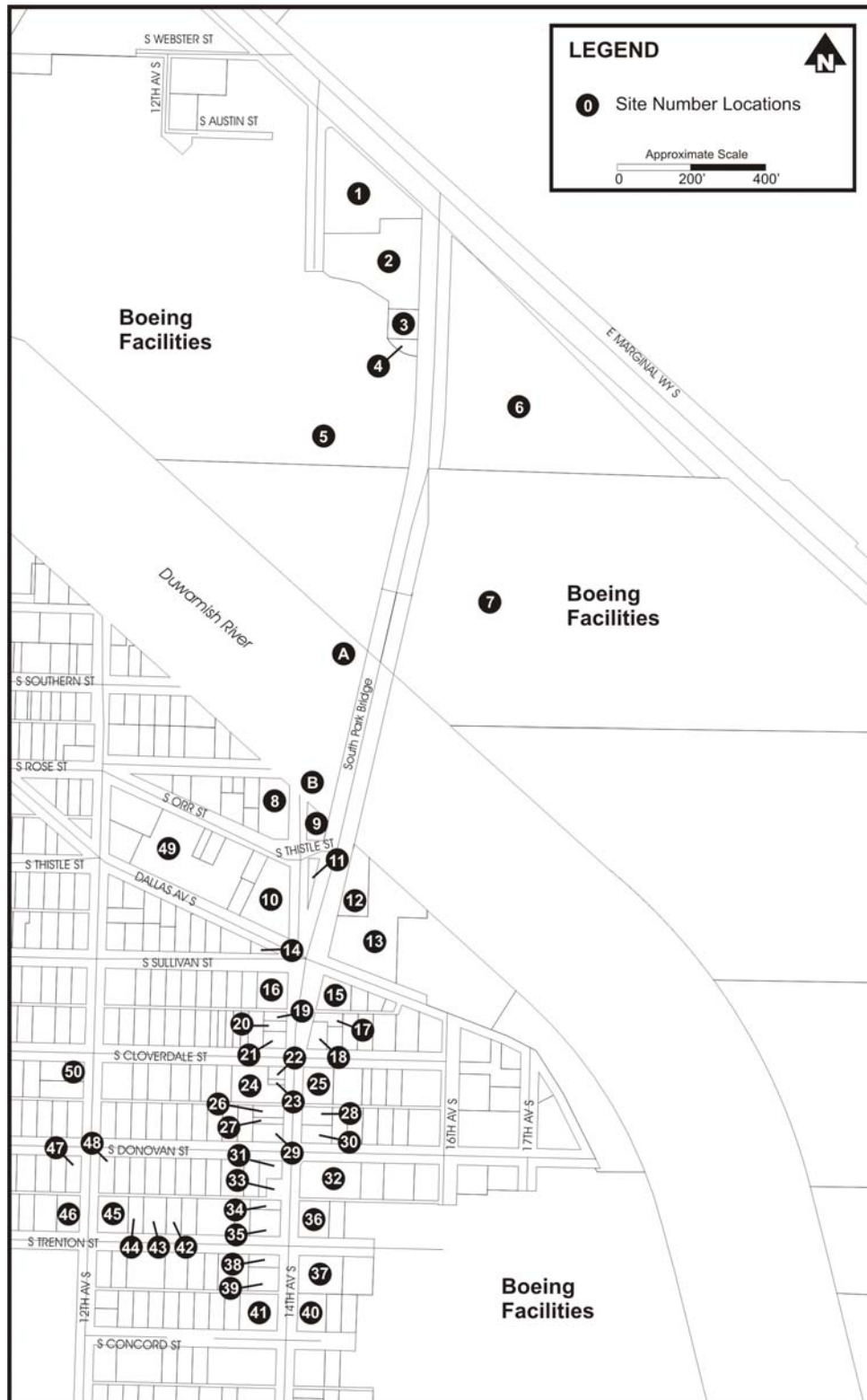


Figure 15
Hazardous Materials Sites

In order to address several areas at Plant 2 with known and/or suspected contamination, each has been listed and labeled as an individual site. These sites fall under three identification categories: 1) Areas of Concern (AOC); 2) Solid Waste Management Units (SWMU); and Other Area (OA) sites (see Table 6). Each site is managed as distinct a cleanup unit at the Plant 2 facility. Within and adjacent to the project area are two AOCs, five SWMUs, and two OA sites. Within one-eighth mile of the project area, there are five AOCs, ten SWMUs, and three OA sites at Plant 2 (Weston, 1999).

Table 6. AOCs, SWMUs, and OAs at Boeing's Plant 2 Facility

Description	Location
AOC 2-10 10.5	Paint Booth Area
AOC 2-31.24	TCE Degreaser
SWMU 2-10.8	Anodic and Alodine Tank Lines
SWMU 2-10.7	Paint strip Tank Line
SWMU 2-15.14	Bulk Storage Tank Pit Oil/Water Separator and Oil Holding Tank
SWMU 2-31.20	Deactivated Cyanide Holding Area
SWMU 2-31.18	Area B Acid Waste Holding Tank
OA8	Building 2-09 Chrome Waste Tank
OA4	Scattered PCB Exceedances

The major contaminants in the soil and groundwater at Boeing's Plant 2 include the following: volatile organic compounds (VOCs), semi-VOCs (SVOCs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), metals, polychlorinated biphenyls (PCBs), and chlorinated compounds.

Under the 1994 EPA order, approximately 2,100 soil samples from more than 400 locations were collected and analyzed from the Boeing Plant 2 RCRA project. In addition, groundwater samples were collected from monitoring wells at over 350 locations, and sediment samples were collected from over 100 stations in the LDW. Chemicals detected in soil and groundwater were VOCs, SVOCs, PCBs, TPH, and metals. Chemicals detected in sediment were PCBs, PAHs, and metals. The results of these investigations are summarized in the 1998 RCRA facility investigation report (Weston, 1998).

Several sediment sampling events have been conducted for Boeing's Plant 2 as a part of Boeing's early action cleanup assessments over the past five years. There is a wealth of information on the nature and extent of contaminated sediments on the Boeing Plant 2 site. There is a high probability that the sediments associated with Boeing's Plant 2 early cleanup site remedial activities would be completed prior to planned construction activities for the project.

Lower Duwamish Waterway (Sites A & B)

Since 2000, EPA has begun to oversee cleanup studies within the Lower Duwamish Superfund Site. Cleanup studies specifically for the waterways are estimated to begin in

2005, if cleanup activities are completed on schedule. Both the EPA and WADOE are currently taking source control measures on all sources contributing to the listed waterways. Seven early action cleanup sites have been identified for the LDW, including the Boeing Plant 2 shoreline. The Malarkey Asphalt site is another early action site that has the potential to impact this project. This site is located just upstream of the South Park Bridge Project and is described below.

The former Malarkey Asphalt site is located less than one-eighth mile upstream of the existing South Park Bridge along the south shoreline. Little sediment sampling has been conducted for the former Malarkey Asphalt plant site. The nature and extent of impacts to the sediment in the Duwamish Waterway from this site are not well defined at this time. The area of contaminated impacts to the sediments from this site could extend to the in-water construction areas and planned barge staging locations proposed for the South Park Bridge Project.

5.3.2 Reasonably Predictable Properties

- **1228 S. Rose Street (Site 8): Boat Repair Yard.** The site is a boat repair yard that would be affected by construction activities proposed for the Bascule, Mid-Level Fixed-Span, and High-Level Fixed-Span bridge alternatives. This site has no reported violations listed for the company within WADOE records. WADOE records do not indicate that the company currently participates in dangerous waste activities. During a windshield survey, the following items were observed on-site: several boats undergoing hull scraping and/or hull painting actions, unlabeled 55-gallon drums and plastic containers, and various containers. Chemical usage and spills are potentially involved with boat repair activities.
- **1400 S. Thistle Street (Site 9): Boat Repair Yard with an Office.** The site is a boat repair yard located within the impact area of the three proposed replacement bridge alternatives. WADOE records do not indicate that the company currently participates in dangerous waste activities. During a windshield survey, the following items were observed on-site: several boats undergoing hull scraping and/or hull painting actions, unlabeled 55-gallon drums and plastic containers, and various containers. Chemical usage and spills are potentially involved with boat repair activities.
- **8456 14th Avenue S. (Site 10): Boat Repair Yard.** The boat repair yard is located in the north two-thirds of the site. This portion of the site is located within the impact area of the three proposed replacement bridge alternatives. WADOE records do not indicate that the company currently participates in dangerous waste activities. During a windshield survey, the following items were observed on-site: several boats undergoing hull scraping and/or hull painting actions, unlabeled 55-gallon drums and plastic containers, and various containers. Chemical usage and spills are potentially involved with boat repair activities.
- **1401 S. Thistle Street (Site 11): House with Junkyard.** This site is a junkyard located within the impact area of the three proposed replacement bridge alternatives. WADOE records do not indicate that the company currently participates in dangerous waste activities. During a windshield survey and in

subsequent site visits, the following items were observed in the back of the property: 1) several old cars and trucks; 2) heavy staining of the exposed ground surface; and 3) several hundred plastic containers and 55-gallon drums. On-site storage of junk can be seen in the 1988 aerial photograph. Based on the site visit, there is high potential that ACM/LBP materials are present in the building structure.

- **8520 14th Avenue S. (Site 17): Salon Expo.** This site is a former service station located immediately adjacent to the impact area of the three replacement bridge alternatives and the Rehabilitation Alternative. The site is located on the east side of 14th Avenue S., mid-block between S. Sullivan and S. Cloverdale streets. The site was a service station from the late 1920s through the late 1990s. Petroleum contamination of soil at the site was reported to WADOE in 2001. The former owners conducted an independent voluntary cleanup of soil. No summary documentation was available from the WADOE northwest office files. Because of the long history of operation as a service station, there is a possibility that soil and groundwater at the site, as well as properties downgradient, are contaminated by petroleum. Also, based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.
- **8524 14th Avenue S. (Site 18): Herb's Repair.** This site is an active service station located at the northeast corner of the intersection of 14th Avenue S. and S. Cloverdale Street. The service station has been in operation since the 1920's. Petroleum contaminated soil from a LUST was reported to WADOE by the former owner. An independent voluntary cleanup was conducted at the site by the owner and an interim cleanup report was submitted to WADOE. At this time, little is known about the actual nature and extent of petroleum contamination in soil and or groundwater at the site. Because of the long history of operation as a service station, there is a possibility that soil and groundwater at the site, as well as properties downgradient, are contaminated by petroleum. Also, based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.
- **8600 14th Avenue S. (Site 25): Napoli Pizzeria.** This site is a restaurant located at the southeast corner of the intersection of 14th Avenue S. and S. Cloverdale Street. WADOE records do not indicate that the company currently participates in dangerous waste activities. Based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.
- **8621 14th Avenue S. (Site 29): Babia's Sewing.** The site is a former service station located at the northwest corner of the intersection of 14th Avenue S. and S. Donovan Street. An auto repair shop and service gasoline station operated at this location continuously since 1936, based on aerial photographs. Petroleum contaminated soil from a LUST was reported to WADOE by a previous owner. An independent voluntary cleanup was conducted at the site by this owner and an interim cleanup report was submitted to WADOE. At this time, little is known about the actual nature and extent of petroleum contamination in the soil or groundwater at

the site. Also, based on a site visit from public areas, there is high potential that ACM/LBP materials are present in the building structure.

- **8620 14th Avenue S. (Site 30): Former Dry Cleaner.** This site is located at the northeast corner of the intersection of 14th Avenue S. and S. Donovan Street. The property does not have any listed violations with WADOE or EPA. During the windshield survey, however, it was noted that the structure looked like a former service station with an awning covering the former pump island. During subsequent site visits, several large volume chemical containers were seen stored on-site in the back of the property. Vent pipes were also noted on the back of the structure. A review of City of Seattle DCLU records indicated that the structure on the property was modified as a dry cleaning operation in the late 1950s. The structure was observed in an aerial photograph taken in 1944 as having an awning. The property may have been a service station for several decades prior to being a dry cleaner. A temporary chain-link fence currently surrounds the property.
- **8700 14th Avenue S. (Site 32): R.L Cook Sale & Supply Warehouse.** This site is a former Chevron station and is located on the southeast corner of the 14th Avenue S. and S. Donovan Street intersection. In the 1990s, this Chevron station had several reported releases of petroleum products from an UST to soil and groundwater on-site. Both contaminated media exceeded Model Toxics Control Act (MTCA) cleanup limits for gasoline. Chevron removed the station and the USTs and conducted an independent voluntary cleanup. The property was then sold in 1998 for development as a warehouse facility. Chevron still conducts groundwater monitoring at the site. Results for ongoing groundwater monitoring are submitted to WADOE.
- **8721 14th Avenue S. (Site 35): A.D Swayne Company.** This site is a former Automatic service station and auto repair shop. It is located at the northwest corner of the 14th Avenue S. and S. Trenton Street intersection. Release of petroleum to soil was reported to WADOE. An independent voluntary cleanup was conducted by the former owners without direction and/or oversight by WADOE. At this time, little is known about the actual nature and extent of petroleum contamination in the soil or groundwater at the site.
- **8410 Dallas Avenue S. (Site 49): Spencer Industries.** The site is a machine shop that manufactures aircraft parts. The property is located one-half block to the west of 14th Avenue S. on Dallas Avenue S. Spencer Industries is listed as a small quantity generator of hazardous waste by the WADOE. There are reported releases of chlorinated solvents at the site. The soil and the groundwater at the site have reported chlorinated solvent contamination.

This chapter provides a conservative analysis of potential environmental impacts by reviewing the potential properties that would be impacted by the proposed South Park Bridge Project alternatives. At this time, only conceptual engineering has been completed, and adjustments are anticipated. These adjustments would have a bearing on which properties would be affected by a project alternative, which parcels would be acquired, and the specific potential liabilities that would be assumed by KCDOT.

This chapter also presents an evaluation of the potential impacts that known or suspected contamination would have on project development. Potential construction impacts on substantially contaminated sites are discussed in detail, and potential impacts on sites with reasonably predictable environmental concerns are discussed in general terms. Issues associated with hazardous substances common throughout the project area (e.g., ACM/LBP, hazardous materials spills) follow the site-specific presentations. Impacts are considered sequentially as follows:

- **Project Involvement Summary**—potential property acquisition and/or easement requirements
- **Potential Projects Impacts**—cleanup liability, worker safety, construction activities, USTs, asbestos/lead contamination, soil, contamination of groundwater, and sediments by PCBs, chlorinated solvents, metals, and/or hazardous materials spills, secondary impacts, cumulative impacts, and operational impacts
- **Potential Regulatory Considerations**—regulatory requirements and the potential impacts most likely to affect the project alternative design and/or specific sites, as well as the in-water work conducted in the LDW
- **Recommendations for Further Investigation**—identifying data gaps to refine the scope of environmental contamination and liabilities associated with acquisition properties.

6.1 Project Involvement Summary

This section summarizes the potential property acquisition and easement requirements associated with project alternatives.

Throughout the South Park Bridge Project area, multiple large and small parcels would be acquired and/or easements would be established. Some of the sites that present specific environmental concerns may not be acquired but have the ability to impact acquired properties. There are multiple buildings that may be demolished during construction and/or widening of the existing right-of-way along 14th Avenue S. It is possible that some of the acquired structures could contain ACM/LBP. Property acquisition and/or easement agreements would generally be limited to parcels that fall within the project impact area, including widening intersections and potential lane widenings along 14th Avenue S.

6.2 Potential Project Impacts

This section summarizes potential construction impacts that could affect the right-of-way alternatives for the South Park Bridge Project, based on known or suspected contaminated properties.

Of the total 58 properties that were analyzed, 15 present a potential for contamination as described in detail below. Three of the sites are considered “substantially contaminated” and the remaining 12 are “reasonably predictable” for contamination. Further investigation, including sampling before construction, could be necessary for more accurate estimates of costs for any cleanup, worker safety and/or construction impacts, and permitting requirements. The potential impacts to the project are divided into the following categories: cleanup liability, worker safety, construction impacts, alternative options, underground storage tanks, contaminated soil, groundwater and/or sediments, ACM/LBP, hazardous materials spills, secondary impacts, cumulative impacts, and operational impacts. All of the costs associated with the identified environmental concerns are discussed in Chapter 7 (Mitigation).

MTCA is commonly used for upland cleanup work along the LDW Superfund site boundary. Cleanups can likely be accomplished as independent actions by KCDOT, with technical review provided by the Department of Ecology on an as-needed basis. Mitigation options to reduce potential construction impacts related to in-water activities of the LDW Superfund site will consider alternative construction techniques that minimize or avoid dewatering and excavation activities. All in-water activities will be reviewed and agreed upon by several federal and state agencies.

6.2.1 Cleanup Liability

Cleanup liability refers to the immediate or long-term remediation costs associated with property acquisition and/or construction activities conducted on contaminated properties.

The northern portion of the project area for the bridge alternatives bisects a portion of the LDW Superfund Site and Boeing’s Plant 2 RCRA Corrective Action site. Construction and demolition activities within these two known contaminated sites would have a high potential to create environmental liabilities for King County. Portions of all five of the proposed South Park Bridge Project alternatives are located within these two contaminated sites.

It is recommended that King County anticipate and minimize any potential liability impacts related to releases to the listed LDW Superfund Site. The South Park Bridge Project is within site source control areas of the LDW. If a spill were to occur prior to completion of the cleanup activities within a listed waterway, the EPA and WADOE would assess the level of liability in reference to the current status of the waterway. The assessment would be based on the effect of the spill on ongoing cleanup activities. If a spill occurs after cleanup activities were completed on a listed LDW, EPA and WADOE would treat the spill as a new release and King County would be required to follow appropriate state and federal regulations to clean up the property. Fines and penalties against King County and/or its construction contractor causing a release could be

assessed and would be administered by the EPA and/or WADOE. King County and its subcontractors will need to undertake appropriate measures to avoid and mitigate such potential spills.

While King County does not anticipate any liability impacts with Boeing facilities and/or their RCRA Corrective Action cleanup activities within the project area, potential risks nonetheless exist. For example, if King County and/or its construction contractor were to rupture a Boeing utility line or create a spill and/or release to the environment during construction activities at Boeing's Plant 2, cleanup costs could be incurred. Any release that would escape during construction at Boeing's Plant 2 could directly enter the LDW or the storm sewer, which drains to the LDW. A release to the waterway could result in King County paying for an appropriate cleanup of the impacted area, damage costs to Boeing, and/or potentially fines.

King County would acquire cleanup liability for property that it acquired that contains existing soil, groundwater, and/or sediment contamination. Liability issues for sites affected by soil and groundwater contamination also can extend beyond the acquired property boundaries. If contamination has migrated off-site from an acquired property through soil and/or groundwater, the County would incur liability for the off-site contamination. Apportionment of responsibility for existing liability should be negotiated at the time of purchase, if possible.

The sites listed in Table 4 have known soil and/or groundwater contamination. There is the potential that known contamination on these sites could migrate into the project area and affect construction activities. Migration of contaminants is more likely to occur with groundwater than with soil due to the ability of water to transport contaminants. Properties with known soil and/or groundwater contamination are adjacent to the project impact area. At one time, as many as five gasoline service stations were located on 14th Avenue S. within the South Park Bridge Project area. Three of these stations reported tank releases to the soil and groundwater contamination issues. While the soil and groundwater appears to be remediated at some of the sites, there is a potential for contamination from one or more of these sites to have migrated beyond the perimeters of the site into the South Park Bridge Project area. Groundwater flow in the South Park Bridge Project area is documented as being perpendicular to the LDW channel. It also is possible that released contamination may have migrated off site and then entered the South Park Bridge Project area via the porous backfill of the storm sewer and/or utility lines along 14th Avenue S. in which the lines are located.

There is high probability that contaminated soil and groundwater would be encountered during construction of the proposed project in the Boeing Plant 2 area. Based on the review of the Boeing Plant 2 findings report in the environmental documents provided by Boeing, the consultant recommends conducting a PSI for these sites at Boeing's Plant 2. The PSI should be initiated to ensure specific construction costs associated with contamination of soil, groundwater, and sediments can be estimated for the project alternatives. A previous aquifer test was conducted at the Boeing property. Existing groundwater data from this aquifer test should be reviewed as a part of the PSI. Groundwater pumping data and contaminant concentration results will be critical to

ensure cost-effective construction procedures are implemented and potential treatment and disposal costs for dewatering effluent are estimated. The information included in the previous aquifer test performed at Boeing should provide sufficient information to guide construction activities without performing another aquifer test.

King County may be able to minimize the potential to incur liability for groundwater contamination that has migrated into the project impact area, as long it does not acquire the property that is the source of the contamination. Nonetheless, any contaminated groundwater that has entered into the project area may affect construction activities, cost, and schedule.

If King County acquires a property where unknown contamination exists, the County would incur liability for any contamination, as well as for the removal of any stored materials remaining on-site at the time of acquisition. King County also could incur the costs for characterization and disposal of any contaminated media or materials that are on-site. Construction activities could impact unknown contamination at any of the sites within the project area listed in Table 4. However, it is unlikely that all of these sites contain unknown contamination. The information is sufficiently detailed in this technical report so that specific site information can be considered prior to commencement of construction. Some of the sites within the project impact area that may contain unknown contamination and/or may be constructed with hazardous materials include all structures on the west side of 14th Avenue S. not within the project area (adjacent properties) and all the 12th Avenue S. residential acquisitions.

If an underground storage tank were encountered during excavation activities, King County would assume cleanup liability for the appropriate decommissioning and removal. King County also may acquire cleanup liability for any contaminated media resulting from a leaking UST in the right-of-way. The presence of vent pipes at a site usually indicates an abandoned UST on the property. In particular, there are potential unknown USTs remaining on sites 17, 29, and 30.

The Rehabilitation Alternative includes the removal of steel and concrete from the existing bridge. If lead-based paint from the structure and/or other contaminants enter the LDW during demolition activities, King County would incur costs for an appropriate cleanup of the area, including possible fines. Again, appropriate measures would be needed to avoid and minimize releases that would cause environmental damage.

6.2.2 Worker Safety and Public Health

This section presents potential worker safety and public health considerations related to environmental issues that may arise during construction. It does not address non-environmental health and safety issues, such as working near traffic or moving machinery, working off the ground or over water, or excavation cave-ins.

A common worker health and safety issue that arises on construction projects is encountering contaminated environmental media (i.e., soil, groundwater, sediments, surface water, and vapors). Worker exposures can occur during excavation and during the

management of contaminated environmental media. Toxic vapors can accumulate in excavations and pose an exposure threat to workers in the immediate area. In most cases, this can be anticipated based on known or probable areas of contamination and should be addressed in the worker safety and health plan. Workers also should anticipate that they might encounter unknown contamination during construction activities. Again, appropriate procedures are needed in the event unknown contamination is encountered.

Any abandoned drums or containers on-site may become inadvertently punctured during construction activities. Drums or containers may contain vapors that produce physical symptoms such as dizziness, irritated or burned skin and eyes, long-term serious injury, suffocation, and in the worst case, death. Explosion and fire hazards also are associated with drums and/or underground storage tanks encountered during construction activities.

Inhalation and ingestion of ACM/LBP materials could have a damaging effect on workers' health. Inhalation and ingestion of ACM/LBP during bridge removal, building activities, and/or excavation of lead-contaminated soils can pose serious risk to workers' health and safety. The risks associated with low levels of contact with asbestos are not well established, so the EPA concludes there is no level of exposure below which risks of contracting an asbestos-related disease is zero. Exposure to asbestos can result in long-term progressive illnesses, including lung cancer, asbestosis, and mesothelioma. The worker safety and health plan should contain measures for managing ACM/LBPs. Common short-term symptoms of lead poisoning include abdominal pain, headaches, constipation, and aches in the joints. Exposure to high levels of lead poisoning can result in retardation, convulsions, coma, and death.

Another possible concern for the South Park Bridge is bird guano, which poses an inhalation risk to workers. Histoplasmosis is an infectious disease caused by inhaling spores of a fungus called *Histoplasma capsulatum* found in bird droppings. The worker safety and health plan should address this risk. According to the National Institute for Occupational Safety and Health, before an activity is started that may disturb any material that might be contaminated with *Histoplasma capsulatum*, workers should be informed in writing of the personal risk factors that increase an individual's chances of developing histoplasmosis. Such a written communication should include a warning that individuals with weakened immune systems are at greatest risk of developing severe and disseminated histoplasmosis if they become infected. These people should seek advice from their health care provider about whether they should avoid exposure to materials that might be contaminated with *Histoplasma capsulatum*.

Workers may ingest and/or inhale contaminants that are associated with equipment and materials brought on-site during construction activities. Contact with contaminants may occur if appropriate personal protective equipment is not worn prior to commencement of work. The Washington State Department of Labor and Industries requires that personnel receive proper training for working with hazardous materials and using personal protective equipment. Contact with petroleum products and chlorinated solvents commonly used on construction projects can result in irritated or burned skin and eyes.

Depending on the nature of contamination encountered during construction activities, worker safety training (such as 40-hour hazardous worker training) may be required of personnel working on the site. See Section 6.3 for information on the regulatory requirements for personnel training under Washington Administrative Code (WAC) 296-62.

6.2.3 Construction Impacts

A delay in construction may occur if unknown contamination and/or drums and containers are encountered during construction activities. Sites where unknown contamination may be encountered within the project area include the reasonably predictable sites listed in Table 4. The sites that are adjacent or outside of the project impact area could have contamination that migrated from the site into the South Park Bridge Project area.

Unknown contamination also may be encountered in heavily industrialized areas. Areas with the highest potential for unknown contamination typically occur within properties that have a long and varied history of industrial and commercial uses. The portion of the South Park Bridge project area that extends from East Marginal Way S. to the intersection of 14th Avenue S. and Dallas Avenue S. is the area with the highest potential for containing unknown pockets of contamination.

If a property with unknown/known contamination is acquired or an easement is obtained, construction could be delayed until the contaminated media is characterized and disposed of properly. These types of construction delays can occur because soils and groundwater, and sediment are typically stockpiled and stored on-site until analytical results are returned from the laboratory. Based on testing results, an appropriate disposal facility can be chosen (if necessary) and the contaminated media disposed of off-site.

Construction staging activities may be affected depending on the staging proximity to contaminated media, underground storage tanks, and sediments, etc. Alternative construction techniques may need to be employed to minimize potential earthwork occurring near any of the above-mentioned potential liability sites.

If contamination were encountered during construction activities, special handling, disposal, and characterization of dewatering effluent and soils would be required. King County would be responsible for proper management of any regulated hazardous wastes.

In addition, efforts to characterize hazardous chemical content of groundwater, the non-hazardous chemical make-up of groundwater within the South Park Bridge Project area should be determined prior to construction activities. The non-hazardous constituents in the aquifer near the channel of the LDW contain high concentrations of iron and manganese. These metals commonly create problems for direct disposal dewatering effluent to the Publicly Owned Treatment Works (POTW). Dewatering efforts conducted during the South Park Bridge Project probably will require permits as well as pre-disposal treatment to precipitate and remove metals before discharge to the POTW.

Disposal costs to discharge dewatering effluent to King County DNR POTW are included in Chapter 7 (Mitigation).

The locations of existing monitoring wells at Boeing's Plant 2, as well as other properties within the South Park Bridge Project area, should be identified prior to commencing any excavation work. Depending upon construction activities, monitoring wells may need to be removed or relocated. Relocating the wells and/or excavation work could impact on-going monitoring activities, cleanup activities, and/or natural attenuation goals established in a site cleanup plan.

If not properly managed, lead-based paint on the steel from the South Park Bridge also could cause construction delays during demolition activities. Similarly, the need to abate ACM/LBP in buildings, if not done in advance, could delay work.

6.2.4 Alternative Impacts

This section provides the results of a comparative analysis of the impacts associated with each individual bridge alternative. Specific information regarding the history and impacts of the sites discussed below is included in Chapters 5 and 6. Please see Figures 6, 9, 10, and 13 for conceptual engineering of the bridge alternatives. For each of the South Park Bridge alternatives, it is possible that structures demolished during construction may contain ACM/LBP. The sites listed in Tables 2 and 4 are included within the following analysis of the bridge alternatives. However, it is possible that sites and/or improvements, not identified within the following discussion, may require an ACM/LBP survey and possible abatement prior to construction activities.

No Action Alternative

The No Action Alternative would entail eventual demolition and removal of the existing bridge. Hazardous material issues of this alternative focus on the steel members of the bridge that are covered with lead-based paint. Also, the structure itself must be disposed of. Contaminated substances may be encountered and excavated in conjunction with demolition of the bridge. The structure and contaminated media must be characterized and properly disposed of.

Rehabilitation Alternative

A total of five additional properties would be purchased under this alternative. PSI site assessments should be conducted on sites A, B, 5/7, 8, 9, and 11. Hazardous material issues focus on the steel portions of the South Park Bridge that are covered with lead-based paint. This paint would be removed during rehabilitation activities. Since the bridge would be under construction, standard containment procedures for lead-based paint removal and new paint application would be required. The bridge will be covered in a shroud to prevent fugitive emissions from escaping and to prevent materials from falling and entering the river.

Bascule Bridge Alternative

A total of seven properties will need to be purchased and/or leased for improvements for this alternative. PSI's should be conducted on sites A, B, 5/7, 8, 9, 10, 11, 25, and 29. While sites 25 and 49 would not be directly affected by this alternative, PSI's are

recommended at these locations to evaluate possible off-site migration of contaminants from these sites. Chapters 6 and 7 describe the hazardous material issues that would be associated with construction activities for the South Park Bridge Project.

Mid-Level Fixed-Span Bridge Alternative

A total of fourteen properties would need to be purchased and/or leased for this alternative. PSI's should be conducted on sites A, B, 5/7, 8, 9, 10, 11, 17, 18, 25, and 49. Chapters 6 and 7 describe the hazardous material issues associated with construction activities for the South Park Bridge Project.

High-Level Fixed-Span Bridge Alternative

A total of 38 properties will need to be purchased and/or leased for improvements for this alternative. PSI's should be conducted on sites A, B, 5/7, 8, 9, 10, 11, 17, 18, 25, 29, 30, 32, 35, and 49. Chapters 6 and 7 describe the hazardous material issues that will be associated with the construction activities for the South Park Bridge Project.

6.2.5 Underground Storage Tanks

Due to past and current activities within the project area, it is possible that underground storage tanks may be encountered during excavation activities. Abandoned underground storage tanks may have been properly closed in place, may contain free product, or may be empty on a site. Underground storage tanks in residential areas are likely to contain heating oil, whereas tanks located in commercial/industrial areas will typically contain automobile fuel and other petroleum products.

6.2.6 Contaminated Soil, Groundwater, and/or Sediments

There is a high probability that contamination will be encountered in the soil, groundwater, and/or sediments during the construction. A PSI should be conducted to sample and characterize the areas of known and/or suspected contamination. PSIs are a requirement of WSDOT Environmental Procedures to provide defensible environmental costs to each design alternative prior to selection of preferred project alternative. Results of PSI sampling are to 1) determine appropriate disposal requirements and estimate costs; 2) incorporate results in the design of alternatives and construction methods; 3) develop worker health and safety plans and procedures; and 4) ensure that project budget and schedule address handling of contaminated media.

The potential for contaminated sediments to adversely affect aquatic organisms living in Duwamish Waterway is an issue of concern. Contaminated sediments are known and are identified within a large portion of the project area. In-water construction activities, such as dredging and/or pier and sheet pile placement, are activities that are known to disturb sediments. Measures to limit the disturbance of contaminated sediment by in-water construction activities should be considered when selecting the bridge alternative and when planning any of the in-water project activities.

The potential for adverse impacts from the disturbance of contaminated sediments is directly related to the nature and duration of the activity causing the disturbance. Dredging is known to be a high-sediment-disturbance activity. Pier and sheet wall

placement, as well as removal, are also known to disturb sediments but to a lesser degree than dredging. Mitigation procedures should be implemented to help reduce adverse impacts from in-water construction activities in contaminated sediment. For example, dredging activities outside of the main channel of the waterway would have a cofferdam placed around the excavation area to contain the suspended contaminated sediments. The cofferdam limits the migration of contaminated sediments from the excavation area and downstream from the project site. The use of hollow steel piers in place of solid steel piers creates less of a disturbance to the sediments. By implementing measures that decrease the amount of sediment disturbed or by containing sediments that have been disturbed is important when planning in-water construction activities.

Suspended contaminated sediments primarily affect the benthic organisms that live within the sediment of the river bottom. These organisms are regularly exposed to contaminants that are found in river bottom. Because these organisms dwell within the sediments, they are less likely to migrate away from an area when sediments are disturbed. These organisms are continuously exposed to the chemical substances and contamination contained in the sediment. Because they form the base of the aquatic food chain, they are of regulatory interest for the health of the waterway's aquatic system. Any disturbance of known contaminated sediments by in-water construction activities would be an issue of concern for regulatory agencies. Once the final bridge alternative and construction methods have been selected, the permitting will be initiated. Local, state, and federal regulatory agencies will review and comment on the proposed in-water construction activities. The regulatory agencies will determine selected mitigation measures to limit disturbance of contaminated sediments.

6.2.7 Asbestos Containing Materials and Lead-Based Paint

There are structures within the project area that may contain both ACM and LBP contamination. A thorough ACM/LBP survey will need to be completed on all structures that would be acquired and demolished by King County prior to construction.

Asbestos was commonly used in a wide variety of building materials during the 1950s and 1960s. Asbestos was used in decreasing quantities from approximately 1970 to 1985. Due to its high thermal resistance, tensile strength, stability, and non-combustible nature, asbestos was used in or around the following building components: pipes, boilers, ventilation ducts, fireproofing material, acoustic insulation, floor and ceiling tiles, linoleum, wallboard compound, plaster, caulking, mortar, and shingles.

Structures constructed prior to 1960 also are a potential source of lead-based paint. Buildings constructed between 1960 and 1977 are less likely to contain LBP due to industry voluntary compliance with standards limiting lead content in interior paint. Lead-based paint can be found on doors, windows, and cabinets. Although it is unlikely that LBP will be encountered in walls or ceiling tiles, interior and exterior walls can be covered with LBP.

If King County acquires a portion or all of a structure suspected of containing ACM/LBP, King County will need to properly assess, abate, and dispose of any existing

ACM and LBP contamination prior to the commencement of bridge construction. Depending upon the lead levels in demolition debris, some materials may be classified as dangerous waste and would need to be disposed of in accordance with WADOE regulations.

6.2.8 Hazardous Materials Spills

Accidental hazardous material spills may occur during construction activities anywhere in the project area. Construction sites involve various activities, equipment, and materials that can result in a potential release of hazardous materials into the environment. Traffic detours and traffic lane closures can increase the risk of accidents that cause spills of hazardous materials or substances. The four locations where spilled hazardous materials generally have the highest adverse affect on water resources are near surface waters, stormwater catch basins, the critical aquifer recharge area, and wellhead protection zones. Releases of relatively small amounts of chemicals to the ground can result in vertical migration to the underlying water table, which is estimated to be between 2 to 15 feet below ground surface (bgs) throughout the project area. More specific information on environmentally sensitive areas is also discussed in the *Water Resources Technical Report*.

6.2.9 Secondary Impacts

Limited secondary impacts are expected from the South Park Bridge Project. Potential secondary issues for construction activities include: 1) chance spills; 2) traffic accidents; 3) traffic congestion; 4) fugitive air emissions from wheels and cargo; and 5) exhaust pipe pollutants.

6.2.10 Cumulative Impacts

No cumulative impacts are expected from the South Park Bridge Project. Rather, a net benefit to ongoing development projects in the same area is expected, including additional removal and cleanup of contaminated materials. It will be important, however, to coordinate the design and construction plans with ongoing environmental restoration project teams to ensure that the design and construction of the South Park Bridge is consistent and does not impact any ongoing remedial activities within the LDW Superfund Site and/or Boeing's Plant 2 RCRA cleanup activities.

6.2.11 Operational Impacts

Construction of the project would improve traffic operations along the entire project corridor. This would ultimately serve to reduce the risk of accidents, including those involving hazardous materials, and thereby decrease the amount of harmful materials that might enter soil and water resources in the project area.

Impacts of hazardous waste and waste from normal operations of the South Park Bridge would primarily be associated with runoff of contaminants entrained in stormwater. Contaminants likely to be in stormwater runoff include fuel, lubricants, heavy metals compounds from tires, and automobile engine coolants such as ethylene glycol. Stormwater and water quality treatment facilities should be designed to collect and retain pollutants from traffic operations. Additional operational impacts would likely include

maintenance painting of the bridge as part of the KCDOT management program. Because operational impacts related to hazardous materials and water are primarily associated with stormwater quality, these issues are addressed in more specific detail in the *Water Resources Technical Report*.

6.3 Regulatory Requirements

Federal, state, and local regulations of hazardous materials may affect the construction project. Regulatory requirements most likely to affect the project are briefly discussed below. See Appendix D for a summary of the federal, state, and local regulations and permit requirements that would likely apply to the rehabilitation or replacement of the South Park Bridge.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) Regulations (Title 40 CFR, Part 300)

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended, 42 U.S.C. 9601 *et seq.*, and the Clean Water Act (CWA), 33 U.S.C. 1251-1376, provide that natural resource trustees may assess damages to natural resources resulting from a discharge of oil or a release of a hazardous substance covered under CERCLA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 establishes a comprehensive framework to identify, investigate, and clean up releases of hazardous substances released to the environment. CERCLA, commonly referred to as Superfund, tracks hazardous waste sites that are inactive and/or abandoned. The sites are tracked from initial discovery to listing on the National Priorities List (NPL). NPL sites are Superfund sites that are determined to be a priority for cleanup and remediation by EPA.

Model Toxics Control Act Regulations (WAC 173-340)

The Model Toxics Control Act (MTCA) applies to any site identified with environmental contamination that may pose a threat to human health and/or the environment. MTCA establishes acceptable cleanup limits for contaminated media. Any necessary cleanup is likely to be accomplished during construction as an independent action by WSDOT, with technical review by WADOE on an as-needed basis. WAC 173-340-450 sets forth the requirements for addressing releases that may pose a threat to human health or the environment from underground storage tanks. An overview of the cleanup standards is detailed in WAC 173-340-700. Soil, groundwater, and sediment cleanup standards are listed in WAC 173-340-740, WAC 173-340-730, and WAC 173-340-760, respectively.

Washington Sediment Management Standards (WAC 173-204-310 through -520; WAC 173-340-760)

The Sediment Management Standards apply to any in-water and/or near-shore activities that will disturb sediment materials. The Water Pollution Control Act, RCW Chapter 90.48, provides WADOE with the ability to regulate and manage existing and proposed discharges to control sediment quality. Like the MTCA, RCW Chapter 70.105D enables WADOE to address necessary environmental cleanups. The Sediment Management Standards were established to set uniform standards for managing the sites and activities

affecting sediments, such as in-water activities and environmental cleanups. Sediment standards are established to be protective of biological risk and human health factors.

Dangerous Waste Regulations (WAC 173-303)

Compliance with waste designation procedures and disposal requirements will most likely affect project construction. Any contaminated materials generated during construction, including soil, water, and debris, will have to be properly designated prior to disposal. In addition, wastes generated by the contractor during construction will require proper designation prior to disposal. WAC 173-303-070 through 173-303-110 include specific regulations that identify dangerous waste characteristics and criteria. The requirements for generators of dangerous waste are included in WAC 173-303-170 through WAC 173-303-230. A transporter of dangerous waste must comply with the procedures listed in WAC 173-303-240 through 173-303-250.

WAC 173-303-145 lists the reporting requirements for spills and discharges into the environment. This section of the WAC applies “when any dangerous waste or hazardous substance is intentionally or accidentally spilled or discharged into the environment such that human health or the environment is threatened, regardless of the quantity of dangerous waste or hazardous substance.” The regulations also detail the required procedures for notification and mitigation should a spill occur.

Solid (Non-Dangerous) Waste Disposal (RCW 70.95, WAC 173-304)

The Washington State Solid Waste Management Act (RCW 70.95) states the primary responsibility for managing solid waste is assigned to local government. The state, however, is responsible for assuring the establishment of effective local programs throughout the state.

Local jurisdictions’ health departments regulate the handling and disposal of solid waste. Identifying the appropriate waste disposal facility is most likely the portion of local solid waste regulation that could affect the project. Local health departments determine whether a waste material is acceptable at one or more of the public or private solid waste facilities in the county. In some cases, testing may be required prior to disposal. Even waste that is being shipped to a disposal facility or soil treatment facility located outside of the county fall under the jurisdiction of local health departments.

WAC 173-304 lists the Minimum Functional Standards for Solid Waste Handling. WAC 173-304-200 designates the on-site containerized storage, collection, and transportation standards for solid waste. The regulations apply to all persons storing containerized solid waste generated on-site. Revisions are anticipated for WAC 173-304, and the final revised rules should be reviewed prior to the commencement of construction. The updated solid waste rule is likely to include new provisions for demolition and inert waste streams.

Hazardous Waste Operations and Treatment, Storage, and Disposal Facilities (WAC 296-62 Part P, RCW 49-17)

WAC 296-62, Part P, includes all of the required procedures for work involving hazardous materials. Due to the possible impacts indicated above for specific sites, there

are sections of WAC 296-62 that are of key importance to prevent workers from being exposed to contamination during project activities.

WAC 296-62, Part P, also details requirements for handling drums and containers. Unlabeled drums and containers are assumed to contain hazardous waste and must be handled accordingly until the contents are positively identified and labeled. Drums and containers that cannot be moved without rupture, leakage, or spillage must be emptied into a sound container. Personal protective equipment selection protocol is outlined in WAC 296-62-30605. The training requirements for site personnel are included within multiple sections of Part P, depending upon the designation of the contamination encountered.

General Occupational Health Standards—Asbestos (WAC 296-62 Part I-1)

WAC 296-62 requires that prior to commencement of construction work, an owner must conduct a good-faith inspection to determine whether materials to be worked on or removed contain asbestos. An accredited inspector must conduct a good-faith inspection. WAC 296-62, Part I-1, requires that an employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter (0.1f/cc) of air during an eight-hour time-weighted average. Besides the permissible exposure limit, the regulation also requires appropriate respiratory protection as well as exposure assessment and monitoring.

Safety Standards for Construction Work—Lead (WAC 296-155)

WAC 296-166 indicates that workers may not be exposed to lead at concentrations greater than 50 micrograms per cubic meter ($50\mu\text{g}/\text{m}^3$) averaged over an eight-hour period. It also outlines the personal protective equipment that shall be given to employees and identifies the medical surveillance procedures that should be implemented for exposed personnel.

Water Quality Standards for Surface Waters (Chapter 173-201A WAC)

The state regulates discharges into surface water. WAC 173-201A-040 is the section of the Water Quality Standards that specifically deals with toxic substances within surface waters of the state. The WAC mandates that toxic substances, above natural background levels, shall not be introduced into waters of the state if the substance will 1) singularly or cumulatively adversely affect characteristic water uses; 2) cause acute or chronic toxicity to the most sensitive biota dependent on the water; or 3) adversely affect public health. WADOE shall employ or require chemical toxicity testing and biological assessments as appropriate to determine compliance with the above-mentioned requirements. WAC 173-201A-160 lists the primary means to control municipal, commercial, and industrial waste discharges through the issuance of waste disposal permits. See the *Water Resources Technical Report* for additional discussion.

Wastewater Discharges to Ground (WAC 173-216)

The State regulates discharges to groundwater. However, the State Water Discharge Permit program includes a variety of exemptions, most of which relate to discharges permitted under a National Pollution Discharge Elimination System (NPDES) permit or otherwise authorized by a POTW with an authorized pretreatment program. This

regulation may apply to stormwater detention vaults planned on the project if the water contains unacceptable concentrations of polluting materials. See the *Water Resources Technical Report* for additional discussion.

Stormwater Permit for Construction Activities and Other Water-Related Permits

Washington regulates discharge to stormwater from construction projects under a general permit. The filing of a Notice of Intent, a stormwater pollution prevention plan (SWPPP), and best management procedures will be required for project construction activities. Other stormwater and/or in-water permits include 1) Hydraulic Project Approval and 2) permits for work in navigable waters issued by the US Army Corps of Engineers. See the *Water Resources Technical Report* for additional discussion.

***National Emission Standards for Hazardous Air Pollutants
(Code of Federal Regulations, Title 40, Volume 5, Parts 61 to 71)***

The EPA's rules concerning the removal and disposal of ACM were issued under the National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP requires a thorough inspection for friable and nonfriable ACM within a structure prior to demolition activities. The Asbestos Hazard Emergency Response Act (AHERA) requires that an accredited inspector conduct all inspections. The NESHAP regulation also includes specific notification, work practice, packaging, labeling, and disposal requirements.

The Puget Sound Clean Air Agency (PSCAA) requires a Notice of Intent to be submitted prior to beginning any work on an asbestos demolition. The only exception is for asbestos projects involving less than 48 square feet and the removal of nonfriable asbestos containing roofing material. An AHERA building inspector or other competent person must make the determination if materials are nonfriable. There is a notification waiting period and fee required prior to planning any abatement work. Asbestos removed from buildings prior to demolition must be disposed in a landfill permitted to receive ACM.

Puget Sound Clean Air Agency, Regulations 1-3

Air quality regulation is also managed by the PSCAA. The regulations adopted by PSCAA control the emissions of air contaminants. The PSCAA regulations carry out the requirements of the Washington Clean Air Act and the federal Clean Air Act. Of particular concern are the requirements to control fugitive emissions from construction sites.

Underground Storage Tank Statute & Regulations (RCW 90-76, WAC 173-360)

This regulation addresses the serious threat posed to human health and the environment by leaking underground storage tank systems containing petroleum and other regulated substances. The regulations describe the enforcement, notification, and reporting requirements for underground storage tanks. The regulation also details performance standards, as well as operating and closure requirements.

Underground Utilities (RCW 19.122)

There are multiple operating utilities within the project areas. RCW 19.122 states that an excavator shall provide notice of the scheduled commencement of excavation to all owners of underground facilities through a one-number locator service. The RCW also states that all owners of underground facilities within a one-number locator service shall subscribe to the service. Notice needs to be communicated to the locator service no less than two days and no more than ten days prior to the commencement of excavation activities. If the excavator discovers utilities that were not identified or damages a utility, the excavator must stop work and notify the locator service and the owner of the utility service if possible. If the damage causes an emergency situation, the excavator will alert the appropriate public health agencies and take all steps necessary to ensure public safety. A failure to notify the locator service of damage to a hazardous liquid or gas pipeline is subject to a civil penalty. Any excavator who willfully or maliciously damages a field-marked underground facility is liable for triple the costs incurred in repairing or relocating the facility.

Endangered Species Act

The Endangered Species Act (ESA) regulates a wide range of activities affecting plants and animals designated as “endangered” or “threatened.” The ESA states that it is unlawful to “take” any animal listed as an endangered species. The ESA defines “endangered” as an animal or plant that is in danger of becoming extinct. “Take” under ESA is broadly defined to include “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect,” or an attempt to engage in such conduct. Endangered species within the Duwamish Waterway include chinook salmon, bull trout, and bald eagles. King County must consider whether it will be necessary to obtain permission for “accidental takes” that may occur as a result of construction or operation activities associated with the proposed project.

6.4 Recommendations for Further Investigation

This section identifies possible liability issues associated with the proposed South Park Bridge Project and offers recommendations for additional investigations. In particular, these investigations could help define the potential for environmental contamination associated with property acquisition and construction worker safety.

6.4.1 *Walk-Through Reconnaissance*

Any commercial, industrial, or residential building that would be demolished should undergo a thorough site reconnaissance prior to acquisition. The site reconnaissance should occur in advance of the desired acquisition in order to minimize cleanup liability incurred by King County. It is recommended that there be a brief walk-through of each building or structure to observe current activities that occur at the facility. For sites where additional sampling is recommended (see below), this is a good opportunity to select likely sampling locations that will best fill existing data gaps. This does not need to be a detailed evaluation of the facility operation. Rather, it should focus on items and areas that could present a significant liability or cost. Components of the site reconnaissance for potential environmental risks and liabilities should include:

- Inspecting building materials to look for potential asbestos containing materials and lead-based paint
- Identifying stored products and/or accumulated problem wastes/products (e.g., petroleum products, chemicals, solvents)
- Observing facility processes that may contribute to existing (and if possible past) environmental degradation, such as sump locations and contents, waste and product storage areas, and material handling practices
- Determining the presence of ASTs and USTs
- Recording any visual indications of environmental contamination (e.g., stains, discoloration, distressed vegetation).
- Determining whether sampling of soil, groundwater, and/or sediment is necessary

6.4.2 Site Reconnaissance/Preliminary Site Investigations/Sampling Activities

Based on the proposed project alternatives, the consultant recommends that a site reconnaissance and PSI be conducted on the sites listed in Table 7.

Table 7. Site Investigations

Description	Site Number
Boeing's Plant 2 North Campus	5
Duwamish Sediments	A & B
Boat Repair Yard	8
Boat Repair Yard	9
Boat Repair Yard	10
House and Junkyard	11
Salon Expo	17
Herb's Repair	18
Napoli Pizzeria	25
Babia's Sewing	29
Former Dry Cleaner	30
R.L. Cook Sales and Supply Warehouse	32
A.D. Swayne Company	35
Aircraft Parts Manufacturer	44

If the site reconnaissance indicates that there are aspects of a property that warrant further investigation, a PSI should be conducted for the property. The purpose of a PSI is to confirm suspected environmental conditions in proposed work areas and at properties to be acquired. It is not intended to characterize the nature and extent of contamination. Investigations should be conducted based on newly adopted MTCA cleanup standards. Sample locations at each site will depend upon the specifics of the property acquisition.

If there are changes to the proposed alternatives, a site reconnaissance should be conducted on any properties not listed in Tables 1 and 2. It is recommended that PSIs should be completed prior to publication of the final Environmental Impact Statement.

In particular, it will be necessary to conduct sampling for possible lead, copper, and tributyltin contamination in the surface soils at all boat yards. To make this assessment, soil samples should be collected from representative locations throughout the boat yards. The number of samples and sample locations and depths should depend upon preliminary design of the South Park Bridge Project. The samples should be collected from existing boat yards and/or adjacent properties to be acquired for the project. The samples should also be analyzed for VOC, SVOC, pesticides and PCBs, RCRA metals, and tributyltin. Based on sample results, additional TCLP analysis may be necessary. The TCLP data can be used to determine appropriate handling and disposal requirements for lead-contaminated soil.

The consultant recommends that pre-construction testing be conducted to determine potential construction impacts to the groundwater and disposal requirements. A review of the prior aquifer test completed at Boeing should be conducted to determine if dewatering would be required during construction activities. The consultant recommends a review of the prior aquifer test conducted at Boeing. This review will determine the yield of the aquifer and determine required pumping rates for desired lowering of the water table for construction activities. This review will also provide information regarding migration of contaminants in the groundwater during dewatering activities. Due to the high potential for encountering contaminated groundwater during pumping associated with dewatering, samples from the prior aquifer test (if results are available) should be analyzed for the presence of chlorinated solvents, PCBs, metals, and total petroleum hydrocarbons (TPH). These data can be used to determine appropriate construction methods prior to the commencement of excavation and dewatering activities. The information included in the previous aquifer test performed at Boeing should provide sufficient information to guide construction activities without performing another aquifer test.

Pre-construction investigation and testing is needed to determine the location and quantity of ACM/LBP and whether these wastes can be properly abated prior to demolition. Proper asbestos and lead-based paint sampling and abatement may be necessary for some of the site-specific structures listed in Section 6.2. Structures with suspected ACM/LBP materials that are located within and adjacent to the South Park Bridge Project area include the following sites: 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 23, 25, 27, 28, 30, 31, 32, 33, and 35. Note that all of the houses located within the proposed detour route connecting 12th Avenue S. and S. Trenton Street are suspected of containing ACM/LBP materials. The need for sampling and abatement will depend upon whether these properties are affected by the selected alternative and whether site reconnaissance observations indicate that the structure is likely to contain ACM/LBP.

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This chapter presents measures to avoid or otherwise control and manage environmental issues encountered under each of the project alternatives. Available utility design data was limited or absent. Using information available from other construction projects and best professional judgment, assumptions were made about the environmental quality of the media to be handled.

7.1 General

Because each of the project alternatives, except for the No Action Alternative, requires several excavations associated with bridge support columns, the KCDOT should consider conducting any necessary cleanup activities prior to construction in order to mitigate long-term cleanup costs. Encountering unidentified contaminated soil during construction activities would require special handling and disposal actions. Costs to handle unknown contaminated soil, groundwater, and/or sediment could be significant. Construction schedules and permits could also be adversely impacted by the discovery of unknown hazardous materials.

To mitigate cleanup costs incurred by King County Department Transportation, the results of pre-acquisition site investigations should be used in determining fair market property values that consider potential long-term cleanup costs under WSDOT PSI guidelines.

7.2 Environmental Media

Three types of environmental media may require special consideration during construction: soil, groundwater, and surface water. Known areas of contaminated soil, groundwater, and surface water may be encountered within areas of planned construction. There also is a high likelihood that ACM/LBP may be encountered in the building materials of structures on properties that may be acquired. Mitigation options for each of the three environmental media, as well as construction debris and other possible impacts, are discussed in the following sections. See Appendix D for listings of relevant state and federal regulations for soil, groundwater, and sediments.

7.2.1 Soil

Space on construction sites would likely be constrained, and quick decisions would need to be made regarding stockpiling and disposal to minimize delays to earthwork contractors. If soil disposal issues are not addressed in a timely manner, schedule delays and additional construction costs may occur.

Contamination in soils should be evaluated relative to MTCA Method A cleanup levels. Revised regulations should be visited prior to determining the final disposition of soils.

MTCA Method A levels are usually relatively conservative and do not account for site-specific conditions when establishing cleanup levels. Soil cleanups using the Method A approach generally result in a greater amount of soil having to be remediated. However,

the MTCA Method A approach is easy to implement, and laboratory testing and data analysis costs are relatively inexpensive. This approach should be considered in locations that contain small amounts of contaminated soil, areas where soils need to be removed and disposed of quickly, and where contaminated soil can be easily used as subgrade road material.

Contaminated soils may require stockpiling and testing to assess the regulatory classification of the soil and the most cost-effective management option. WADOE's 1995 Guidance for Remediation of Petroleum Contaminated Soils is a guidance document that can be used, although it does not account for higher cleanup levels provided in the 2001 amended regulations. Revised WADOE guidance for remediation of soils is anticipated within the next two years. Contaminated soils in excess of landfill requirements and/or containing contaminants above maximum site-specific, risk-based action levels would need to be transported to the nearest treatment facility. Some soils containing contamination below MTCA cleanup levels could be left on-site and used as general fill material (i.e., placed under roadways), if the soils meet geotechnical requirements. This option should be carefully considered because many soil disposal facilities that normally take "clean soil" will not take soil with detectable concentrations of contaminants. The final selection of the off-site disposal method for contaminated soil would depend on the contaminant concentration and the volume, moisture content, and grain size of the soil.

If contaminated soils fail the hazardous waste toxicity characteristics, as determined using the TCLP, the soils would need to be managed as dangerous waste per state regulations. The generator of such waste must obtain an ID number for each "site" (i.e., location). The ID number is obtained by submitting a Form 2 Notification of Dangerous Waste Activities to the WADOE (see Appendix C for a copy of this form). This step can be completed after the soil is determined to be dangerous waste for unanticipated soils. If it is known that dangerous waste soils are present, at the outset of the project, King County should obtain an ID number, along with a determination of soil handling requirements. In such cases, it is often easiest to load soil directly into trucks for shipment to the treatment location/facility.

Contaminated soils will require stockpiling and testing to assess regulatory classification of the soil and the associated most cost-effective management option. The following potential management options are available:

- Soils containing contamination below MTCA cleanup levels may be placed (capped) under roadways, if suitable fill capacity exists and the soils meet geotechnical fill requirements. This option adds little to no additional cost to construction.
- Contamination in excess of the fill requirements and/or containing contamination above MTCA cleanup levels, but below the dangerous waste criteria, may be transported to a regional solid waste landfill for disposal.
- Contaminated soils designated as dangerous waste shall be transported to a designated landfill that is permitted to handle dangerous waste for stabilization and disposal.

There are several companies that can dispose of non-hazardous or hazardous waste in the project vicinity. For example, TPS Technologies (TPS), located in Tacoma, is a thermal disposal facility with specific waste characterization and acceptance procedures. TPS will not accept soils designated as state dangerous waste or federal hazardous waste. For example, the following are the maximum acceptable concentrations for the TPS technologies facility:

- TPH (Total Petroleum Hydrocarbons): No limit on acceptance
- PAH: No limit on acceptance
- Chlorinated Compounds: 100 ppm total chlorinated
- PCB Compounds: 49 ppm total PCB
- Other contaminants of concern (e.g., metals) have maximum acceptable concentrations depending on the volume of soils to be treated and type of contaminant. These types of contaminants are treated on a project-by-project basis.

A second local disposal facility is operated by the Rabanco Regional Disposal Company. Rabanco can load the contaminated soil into trucks, haul the soil to Tacoma for transfer into train cars, and then transport the soil via rail to the appropriate landfill. Rabanco's criteria for analytical parameters include:

- Flashpoint
- Lead, Total
- Total Organic Halogens
- TCLP metals, cadmium, lead, and chromium
- BTEX (Benzene, Toluene, Ethyl Benzene, Xylene)
- PCBs

Rabanco's maximum allowable contamination levels are specific to each type of contaminant. The seven categories of contaminants are: TCLP metals, TCLP volatiles, TCLP semi-volatiles (base neutrals), TCLP semi-volatiles (acid compounds), TCLP herbicides, TCLP pesticides, and a general category that includes TPH and PCBs. Some of the allowable levels (e.g., TPH) can vary depending upon the landfill that will handle the disposal of the materials.

If the contaminated soil contains regulated hazardous waste, a disposal company that is permitted to handle that type of soil will need to be contacted. Each of the disposal facilities will require sampling and other specific procedures as developed by each company. Two common disposal facilities for this type of media in Western Washington are Philip Services and Ensco, Inc. If hazardous waste were generated during construction, a Form 2 Notification of Dangerous Waste Activities would need to be submitted to the Department of Ecology.

Pre-construction soil characterization would allow King County to appropriately address soil management and disposal requirements in a special construction bid specification.

The specification may require a contaminated media contingency plan. The purpose of this plan would be to identify procedures and chains of responsibility to effectively manage contaminated soil as it is encountered during construction to minimize delays. Contaminated media contingency plans should be comprehensive and address issues such as field screening methods, notification requirements, soil stockpile management, and appropriate disposal methods and facilities.

7.2.2 Surface Water

Mitigation measures to minimize potential impacts to surface water resources include erosion and spill prevention controls. The plans should specify control methods, emergency response, notification, and chain of command. See Section 7.4 for SPCC Plan requirements.

Erosion controls address the procedures, equipment, and materials necessary to avoid erosion during excavation and stockpiling work. Contractors should be required to address the diversion of stormwater, use of storm sewer inlet catch basins and soil berms, stormwater pollution prevention best management practices, and the covering of soil stockpiles to prevent erosion. The WSDOT Highway Runoff Manual provides specific guidance on erosion controls.

7.2.3 Groundwater

Proposed construction methods will include dewatering. It may be impractical to treat the volumes of water at staging areas within the proposed project area. Depending on local conditions, it also may be infeasible to discharge to the sanitary or stormwater sewer system. For this reason, regardless of underlying groundwater quality, alternative construction techniques that minimize or avoid dewatering (e.g., sheet piling, cased piers, driven piling, spread footings) are proposed.

If the contaminated groundwater contains regulated hazardous waste, a disposal company permitted to handle that type of water would need to be contacted. Such disposal facilities will require sampling and other specific procedures developed by each company. Two disposal facilities for this type of media in Western Washington are Philip Services and Ensco, Inc. If hazardous waste is generated during construction, a Form 2, Notification of Dangerous Waste Activities will need to be submitted to the Department of Ecology.

In the event that construction dewatering flows cannot be minimized sufficiently to allow disposal to the city sewer system, on-site treatment and short-term disposal in local surface waters may become necessary. The general NPDES construction permit for the South Park Bridge should address the specific requirements of groundwater disposal off-site. King County will handle questions regarding discharges to the sanitary and stormwater systems on a case-by-case basis. See the *Water Resources Technical Report* for detailed information on the NPDES construction permit.

7.2.4 Sediment

Prior to construction of the proposed project, sediment sampling will be required in areas where sediments would be disturbed on the river. Sampling should be conducted in order to provide cost estimates for handling the contaminated sediments and to ensure that

these activities are incorporated in the project budget and schedule. The Sediment Management Standards, Chapter 173-204 WAC, were established to regulate source control and cleanup activities of contaminated sediments. Sediment Management Standards acknowledge the Water Pollution Control Act (Chapter 90.48 RCW) and the Model Toxics Control Act (Chapter 70.105D RCW) as the primary authorizing legislation for establishing sediment source control and cleanup standards. The source control standards include authorization, maintenance, and closure of sediment impact zones (i.e., sediment dilution zones, limited areas in which dischargers are permitted to contribute higher contaminant levels for limited periods of time). Source control, cleanup, and sediment quality standards for all other state marine, low salinity, and freshwater sediments shall be determined on a case-by-case basis until quantitative standards applicable to these sediments are established.

See Chapter 5 for a discussion of soil constituents that must be evaluated against sediment quality standards. Sample collection differs from soil sample collection, as defined in WADOE's Recommended Guidelines for Sampling Marine Sediment, Water Column, 1997.

The cleanup standards include a decision process designed to meet the sediment quality goals identified in the Sediment Management Standards. The Sediment Management Standards also incorporate sediment quality standards that establish a "no effects" goal for the chemical and biological quality of sediment.

7.3 Demolition Debris

With the exception of recycling, the least expensive option for disposal of demolition debris would be at a lined demolition debris landfill. Otherwise, the KCDOT could be liable for future cleanup actions related to leaching contaminants from an unlined demolition debris landfill. The determination to use a lined or unlined landfill should be based on the leachability characteristics of the debris. Contacting the landfill to inquire about potential restrictions regarding disposal of demolition debris is advisable.

Building demolitions will generate non-hazardous construction debris as its primary waste stream. For the most part, this material should include metal, concrete, wood and wallboard. There is often an economic benefit in recycling some building components. Separating and recycling demolition debris can dramatically reduce demolition costs. In addition to a cost savings, the liability associated with waste disposal is reduced or eliminated through recycling.

The following common debris items can be segregated and recycled as scrap: steel posts, beams, stairs, railings, doors, windows, and aluminum siding. Concrete can be used as fill material in some applications. Gypsum wallboard can also be recycled. Structural wood can also be recycled, and there may be a market for recycled doors, windows, and light fixtures. Of course, it is necessary to exclude from recycling ACM/LBP materials, see discussion below.

Demolition debris is not discussed any further in this report as solid waste is not a cost associated with hazardous materials with the exception of ACM/LBP.

7.4 Spill Prevention Control and Countermeasure Plan

An SPCC plan is designed to mitigate impacts to soil, surface water, and groundwater. SPCC plans address procedures, equipment, and materials used in the event of a spill of contaminated soil, petroleum products, contaminated water, or other hazardous substances. According to General Special Provision (GSP) #071502.FR1, contractors should be responsible for providing an SPCC Plan on all King County projects prior to commencing work. Revisions are anticipated for King County SPCC plan specifications, though final revised specifications were scheduled to be published in December 2001.

All SPCC plans must include the following elements:

- Introduction
- SPCC Plan Elements
- Site Information
- Management Approval
- Site Description
- Planning and Recognition
- Spill Prevention and Containment
- Spill Response
- Reporting
- Program Management
- Attachment A: Emergency Action Plan
- Attachment B: Site Plan
- Attachment C: Inspection and Incident Report Forms

7.5 Asbestos Containing Materials/Lead Based Paint

Mitigation for ACM includes removal and disposal of asbestos containing materials prior to demolition. All sampling and abatement procedures must comply with NESHAP and state regulations, including permissible exposure limits and personal protective equipment requirements. Structures containing LBP should be sampled to determine the characteristics of the debris for disposal purposes. Lead-based paint waste may need to be analyzed for leachability characteristics prior to determination of an appropriate disposal facility. The Washington Department of Labor and Industries requires that personnel not be exposed to levels of ACM/LBP above permissible exposure limits. State regulations also require that workers wear appropriate personal protective equipment prior to contact with ACM/LBP. Worker and public safety concerns should be addressed through special bid specifications.

For the Rehabilitation and the No Action alternatives, containment below the bridge will be necessary to stop loose flakes and paint chips from entering the Duwamish River. Best management practices should be used during any sand-blasting, pressure washing, chipping, and painting activities to prevent pollution from entering the waterway. The bridge will be covered in a shroud to prevent fugitive emissions from escaping and for preventing materials from falling and entering the river. A blast medium like Blastox should help to minimize the amount of hazardous waste to be disposed of off-site. Blastox encapsulates the lead, allowing disposal at a demolition landfill. Lead-based

paint debris with elevated concentrations of leachable lead will need to be disposed of at a lined landfill permitted to accept such hazardous waste.

7.6 Underground Utilities

All utility locations should be identified during the design phase of the project. In addition, less than two days and no more than ten days prior to excavation commencing, the Underground Utility Locate Center must be notified. The telephone number for the locate center is 1-800-424-5555. The locate center will then notify all of the necessary utility owners so that utility sites are marked within the project impact area.

7.7 Worker and Public Health and Safety

Improper use or management of hazardous materials/substances brought to the work site by the contractor can, and often does, result in unacceptable work exposures. Pre-existing site conditions also may have the potential to impact worker safety. Proper employee training, contaminated media contingency planning, and secondary containment for hazardous materials should be required of the contractor. Washington Department of Labor and Industry regulations require the assumption that unlabeled drums and containers contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

With respect to the public, attention to the following measures should minimize potential public health and safety concerns:

- Contaminated environmental media and hazardous materials should be contained so they are not readily available to the public and/or public access should be restricted
- Transportation of contaminated environmental media and hazardous substances on public right-of-way should be packaged and shipped in accordance with the U.S. Department of Transportation (DOT) requirements to reduce the potential for releases

If a limited Preliminary Site Assessment and/or ambient air monitoring indicate fugitive dust is an issue: 1) workers must be notified; 2) air monitoring during construction should occur; 3) workers may be required to wear personal protective equipment during construction; and/or 4) dust suppression techniques may need to be implemented at the project site.

When working with contaminants or unknowns, permissible exposure limits have to be implemented. Workers' exposures to any regulated contaminant should not exceed the permissible exposure limits based on a regular eight-hour working day. According to Washington Department of Labor and Industry requirements, workers must be provided with personal protective equipment that is appropriate for site conditions. Chapter 6 summarizes the regulations that impact worker safety and health requirements. Those regulations that deal primarily with worker's health and safety requirements include: State Dangerous Waste Regulations (Chapter 173-303 WAC), Safety Standards for Construction Work (Chapter 296-155 WAC), National Emission Standards for Hazardous Air Pollutants (Code of Federal Regulations, Title 40, Volume 5, Parts 61 to 71), and General Occupational Health Standards (Chapter 296-62 WAC).

A particular worker safety concern associated with the proposed South Park Bridge Project is the risk of histoplasmosis (a fungal infection caused by exposure to guano). According to the National Institute for Occupational Safety and Health, before an activity is started that may disturb any material that might be contaminated by *H. capsulatum*, workers should be informed in writing of the personal risk factors that increase an individual's chances of developing histoplasmosis. Such a written communication should include a warning that individuals with weakened immune systems are at greatest risk of developing severe and disseminated histoplasmosis, if they become infected. These workers should seek advice from their health care provider about whether they should avoid exposure to materials that might be contaminated with *H. capsulatum*.

Notification of the existence of *histoplasma capsulation* on the bridge could mitigate potential health hazards to workers. It is recommended that an inspection of the bridge be conducted in advance of construction activities to determine if guano containing the fungus is present. If discovered, proper removal procedures could occur prior to and/or during demolition.

7.8 Underground Storage Tanks (USTs)

USTs can pose environmental problems as well as create a threat to worker safety and health. There are suspected USTs within the project impact area, and it is possible that they may be encountered during construction. It is recommended that a magnetometer survey be conducted prior to construction activities to determine likely UST sites. The Department of Ecology's Underground Storage Tank Statute and Regulations (Chapter 90-76 RCW, Chapter 173-360 WAC) should be followed when removing a UST with a regulated substance.

A suspected release from a UST must be reported to WADOE within 24 hours of the discovery of the release. A certified UST supervisor shall complete permanent tank closures. The site assessment required under WAC 173-360-390 shall be performed after notifying the department or delegated agency, but prior to completion of the permanent closure or a change-in-service. To permanently close a UST system, the certified UST supervisor shall empty and clean the tank by removing all liquids and accumulated sludges. All tanks taken out of service permanently shall either be removed from the ground or filled with an inert solid material. All piping connected to the USTs shall either be capped (except vent lines) or removed from the ground.

7.9 Preliminary Cost Estimates

This section presents preliminary cost estimates for recommended additional investigation and remediation associated with construction. Itemized details are presented below. In most cases, cost estimates are based on conceptual engineering of the proposed bridge project alternatives and best professional judgment. Due to the limited information reflected in the conceptual engineering designs, estimates are expressed in unit costs.

7.9.1 Site Investigation Cost Estimates

The purpose of a site reconnaissance is to identify potential sources of hazardous substances and/or petroleum products that may have been used at a site or in the surrounding area that could adversely impact the subject property. The results of a site reconnaissance are used to determine whether environmental sampling may be required prior to right-of-way acquisition. A site reconnaissance should be conducted on all of the sites listed within Tables 2 and 4. If results of the site reconnaissance indicate that further investigation is necessary, a PSI should be conducted to confirm the presence of environmental concerns at the property. The PSI cost estimate includes a walk-through site reconnaissance of the properties as well as sampling activities and laboratory analysis. The estimated costs for a site reconnaissance and possible PSI for the specific sites of interest are included below in Table 8. Actual costs would be based on a detailed scope of work that would include developing a Sample Analysis Plan (SAP) and a Health and Safety Plan, conducting the field activities, laboratory analysis work, and compilation and tabulation of field data and analysis results for each of the recommended sites.

Table 8. Estimated Site Investigation Costs

Site	Reconnaissance	PSI (if needed)
Boeing's Plant 2 Site 5	\$2,700	\$74,500.00 *
Duwamish Sediments Site B	\$3,300	\$52,000.00 #
Boat Repair Yard Site 8	\$1,150	\$18,500 *
Boat Repair Yard Site 9	\$1,150	\$12,500
Boat Repair Yard Site 10	\$1,150	\$12,200
House & Junk Yard Site 11	\$1,150	\$7,200
Salon Expo Site 17	\$1,150	\$7,200
Herb's Repair Site 18	\$1,150	\$7,200
Napoli Pizzeria Site 25	\$1,150	\$7,200
Babia's Sewing Site 29	\$1,150	\$7,200
Former Dry Cleaner Site 30	\$1,150	\$7,200
R.L. Cook Sales & Supply Warehouse Site 32	\$1,150	\$7,200
A.D. Swayne Company Site 35	\$1,150	\$7,200
Aircraft Parts Manufacture Site 44	\$1,150	\$7,200

* = includes tasks for aquifer testing and sampling

= in-water sampling activities and tasks

This table represents sites affected by the South Park Bridge Project alternatives dated 9/23/02. If a proposed alignment is altered or additional properties are identified for acquisition, this cost estimate may change.

The estimated costs for site reconnaissance and PSI activities ranges from \$8,350 to \$77,200 depending on the site. The estimated costs to conduct just the Site Reconnaissance activities ranges from \$2,700 to \$1,100 depending on the property listed in Table 8. Depending upon the site reconnaissance results, a PSI may need to be conducted.

7.9.2 Preliminary Construction Remediation Cost Estimates

Itemized details of cost estimates for construction remediation are presented below. Because conceptual engineering design information is limited for the proposed project alternatives, only unit costs are provided. Cost estimates are based on information available from other construction projects within the Duwamish Waterway corridor.

Contaminated Soil

Unit rates for soil management have been estimated for off-site treatment or off-site disposal based on the assumption that non-hazardous contaminated soil would be transported to a thermal treatment facility located in western Washington. The typical unit cost at these facilities is \$35 per ton. Transportation costs are estimated at approximately \$10 per ton plus a \$500 loading fee.

These cost estimates do not include soil characterization costs prior to disposal or the costs associated with backfill material and placement costs. The characterization costs can differ greatly depending upon the constituent for which the soil is analyzed.

Petroleum contamination is one of the most common constituents encountered in soil, and analytical prices are approximately \$50 to \$80 per sample. Non-hazardous petroleum contaminated soil that cannot be disposed of at a thermal facility (e.g., soil contaminated with chlorinated solvents and/or metals) would need to be disposed of at a regional landfill. The cost estimate for disposal at one of these facilities is approximately \$29 per ton combined with a \$95 per hour transportation cost.

Note that within Tukwila city limits, there are restricted truck loading and transport times. These rules can greatly impact disposal transport operations and schedules and, consequently, costs.

The disposal costs for regulated hazardous waste are considerably more expensive than non-regulated contaminated soil. Analytical prices for metals contamination range from \$70 to \$150 per sample depending upon EPA methods and individual laboratories. Analytical prices for characterizing soil and materials that would likely be encountered at Boeing's Plant 2 site will range from \$350 to \$475 per sample depending upon EPA methods. The estimated cost for removal of soil contaminated with hazardous waste is approximately \$397 per ton. Costs to transport the soil are approximately \$95 per hour and are based on portal-to-portal transportation from Seattle to Arlington, Oregon. The cost estimate will differ depending upon the specific characteristics of the soil and the levels of contamination. However, soil highly contaminated with chlorinated solvents and/or PCB and pesticides may require disposal by incineration. These disposal costs can range from \$1200 to \$1800 per ton plus the disposal fees for regulated hazardous wastes described above.

The above unit costs assume typical conditions and, therefore, represent a "most likely" estimate for management, treatment, and/or disposal. These estimates do not include the costs of excavation, stabilizing the soils, stock piling contaminated materials, managing stockpile area runoff, and/or conformation sampling of soil prior to disposal.

Contaminated Sediment

Estimated disposal rates for impacted sediments are based on the assumption that the sediments associated with the proposed South Park Bridge Project are non-hazardous and would be transported to a Class C landfill in eastern Washington. Cost for dredging and transporting sediments to upland storage areas is \$10.00 per cubic yard (CY). The cost of transferring sediments from the upland storage area to railcars is approximately \$3.50 per cubic yard. Upland disposal to a Class C landfill is approximately \$24.00 per ton (King County 2001). Note that these costs do not include the following: 1) potential dewatering

requirements of the dredge sediments; 2) construction of the upland storage area; and 3) management of the upland storage area.

Contaminated Groundwater

Unit rates for groundwater management have been estimated for off-site disposal based on the assumption that contaminated groundwater would be transported to an environmental disposal facility in western Washington. King County Department of Natural Resources (DNR) handles dewatering discharges to the stormwater and/or the sanitary systems on a case-by-case basis. Currently King County DNR unit cost for discharge to the sanitary sewer is approximately \$23.40 per 6000 gallons. Fees provided are based on information listed on King County's DNR web site for industrial wastes: <http://dnr.metrokc.gov/wlr/indwaste/fees.htm>. The estimated groundwater disposal costs (including hazardous waste) anticipated during construction of the proposed South Park Bridge range from \$ 1.50 per gallon to \$3.50 per gallon. Costs can increase depending upon the characterization of the water and the levels of contamination present. Transportation costs can average about \$4 per gallon in the Duwamish Industrial Area.

Characterization costs are not included in the above disposal costs. The characterization costs can differ greatly depending upon the constituent for which the groundwater is analyzed. Petroleum contamination is one of the most common constituents encountered in groundwater and analytical prices range from \$50 to \$80 per sample. A second common constituent in soil is metal contamination, and analytical prices range from \$70 to \$150 per sample depending upon EPA methods and individual laboratory prices. Costs to transport the groundwater are about \$80 per hour and are based on portal-to-portal transportation from Seattle. The cost estimate can differ depending upon the specific characteristics of the water and the levels of contamination. (ARI, 2003)

The above unit costs assume typical conditions and, therefore, represent a "most likely" estimate for transportation, treatment, and/or disposal. These estimates do not include costs for dewatering since this cost would be incurred regardless of whether the groundwater was contaminated. Contaminated groundwater generated by dewatering activities may require treatment prior to discharge to the sanitary sewer. It also should be noted that groundwater within the project area is typically high in natural metal content, which usually prohibits direct discharge to the Duwamish Waterway.

UST Decommissioning

If USTs need to be removed from a site prior to construction, the estimated cost for decommissioning and removal of a UST (1,000–4,000 gallon capacity) can range from \$4,500 to \$12,000. Decommissioning fees typically include excavation of the tank, sampling of soils within the excavation, and completion of any required reporting requirements. The estimates for UST decommissioning do not include cleanup costs if contamination is encountered within the excavation and do not include the cost of long-term monitoring of groundwater, if required.

Asbestos Containing Materials and Lead Based Paint

ACM/LBP abatement procedures typically will occur at the same time because abatement for LBP is usually only conducted if a representative sample of construction debris (collected during the survey) fails TCLP testing for lead. Lead abatement occurs while

the ACM is removed so that construction debris does not have to be handled as a dangerous waste due to leaching characteristics. The types of debris that typically cause TCLP exceedance for LBP are trim and caulking on doors and windows.

Because data on ACM/LBP were not available for the buildings in the project area, a number of assumptions were made to estimate the cost to manage (i.e., survey, abate, and dispose of) ACM/LBP. To determine cost estimates, it is assumed that:

- The average size of residential buildings would be 1,700 square feet
- The average size of small industrial/commercial buildings would be 4,000 square feet
- The average size of large industrial/commercial buildings would be 25,000 square feet
- No previous abatement has occurred in the buildings
- With the exception of roofing material, ACM could be disposed of at a permitted landfill
- The asbestos survey cost estimate includes the cost to prepare abatement plans and specifications
- The asbestos abatement cost estimate includes the cost to oversee and document abatement and disposal

The unit cost to survey and abate asbestos is estimated to be:

- \$12,000 for residential structures
- \$14,500 for small industrial/commercial structures
- \$66,000 for large industrial/commercial structures

A cost estimate for the abatement of LBP paint for a residence is approximately \$3,000. Assuming a structure that is 1,700 square feet, the per-foot cost for LBP abatement is approximately \$1.75 per square foot. That cost can be used to approximate the abatement costs for LBP in industrial/commercial size structures. The costs for abatement also will differ depending on the amounts of LBP located within or on the outside of the structure.

Table 9 lists the specific sites within the project area that have buildings that may contain ACM/LBP, as well as, the estimated sampling and abatement costs associated with those properties.

The overall estimated cost for ACM/LBP abatements range from \$84,000 to \$135,000 depending on the project alternative. This estimate is based on the apparent size and structure of the improvements, as noted during windshield surveys and site visits from public areas conducted as part of technical report.

The removal and demolition of the existing South Park Bridge over the Duwamish Waterway would require that lead-based paint be removed from the structure. Based on communications with WSDOT Environmental Affairs Office, bridge projects that require lead removal typically cost \$375,000 more than projects that do not require lead removal.

The \$375,000 preparation work includes removal of the lead-based paint from the structure, disposal, and other considerations that need to be made for the removed material.

Table 9. Estimated ACM/LBP Costs*

Site	Estimated ACM/LBP Costs
Site 9	\$14,500
Site 11	\$12,000
Site 10	\$14,500
Site 17	\$14,500
Site 18	\$14,500
Site 25	\$14,500
Site 28	\$12,000
Site 30	\$14,500
Site 45	\$12,000
Site 44	\$12,000

*Properties acquired by King County Department of Transportation that are not listed as a specific site of interest in this technical report may contain ACM/LBP. A site reconnaissance should be conducted on any property to be acquired by King County Department of Transportation to determine if ACM/LBP sampling and abatement is necessary.

Abandoned/Unknown Materials

It is likely that unknown materials may be encountered during construction activities in the project area. Estimates associated with removing unknown materials from a site depend upon, but are not limited to, the following: 1) sample analysis to characterize the materials; 2) management of the materials on-site; and 3) transportation and disposal of the unknown materials. Each of the three costs above can vary greatly depending on the specific material characteristics and the quantity of material to be removed from the site. For this reason, a specific cost estimate associated with abandoned/unknown materials is not provided in this discipline report. Please see cost estimates for specific media listed within this chapter as a basis for estimating unknown costs.

Spill Prevention Control and Countermeasure Plan

An SPCC plan is developed for a specific construction project. The plan typically varies in cost from \$500 to \$5,000 depending upon the contractor, the project size, and the location. Due to the size of the South Park Bridge Project area and its proximity to the Duwamish Waterway, the estimated cost to develop the SPCC plan may be closer to \$5,000. Plan implementation costs would depend on the contractor's diligence to prevent spills. If care is taken to prevent spills, the plan implementation costs should be less than \$25,000.

7.10 Regulatory Requirements

State Dangerous Waste

Wastes or environmental media designated as dangerous waste must be managed in accordance with applicable regulations. This requires notification to WADOE so that an identification number can be obtained for each location that hazardous waste is generated. Dangerous waste must be shipped off-site for proper treatment and/or disposal within 90 days of the date of generation. Storage longer than 90 days or treatment on-site generally requires a permit from WADOE. Obtaining a permit is not usually a viable alternative because of the time and cost required to complete the permit process.

Model Toxics Control Act Superfund

To the extent that project construction areas coincide with federal Superfund or state MTCA cleanup sites, early coordination with EPA and/or WADOE, respectively, may be necessary to minimize potential project delays. Although the project area is within the boundaries of the LDW Superfund Site, it is not anticipated that the project would impact the Boeing sediment area and/or the Malarkey Asphalt sediment area. MTCA is commonly used for upland cleanup work in the LDW site boundary. EPA will probably assume “lead agency” status for the proposed South Park Bridge Project. Cleanups likely can be accomplished as independent actions by King County, with technical review provided by EPA and WADOE on an as-needed basis. Mitigation options to reduce potential construction impacts related to Superfund (EPA) and MTCA (WADOE) regulations generally revolve around considering alternative construction techniques that minimize or avoid dewatering and excavation activities.

National Pollution Discharge Elimination System

King County is likely to be required to obtain an overall NPDES construction permit for the entire South Park Bridge Project. Please see the *Water Resources Technical Report* for specific requirements for the NPDES permit.

Solid (Non-Dangerous) Waste Disposal

The King County Department of Natural Resources Solid Waste Division regulates the handling of solid waste within King County. The web site below lists all of the solid waste facilities within King County on the Source Protection program’s web page at www.metrokc.gov/wlr.

The web page lists solid waste facilities for the following categories:

- Municipal Solid Waste Landfills
- Municipal Solid Waste Transfer Stations
- Inert/Demolition Waste Landfills
- Recycling Facilities
- Petroleum Contaminated Soil Treatment Facilities
- Yard Waste/Organic Debris Drop-off Facilities

General Occupational Health Standards (WAC 296-62)

Measures should be taken to limit the exposure of workers and the general public to human health hazards. Specific mitigation measures are detailed in the Mitigation Options for Worker and Public Health and Safety section.

Asbestos Containing Materials

The PSCAA should be contacted as soon as possible regarding permitting of the abatement of ACM. If a survey indicates the existence of ACM in structures to be demolished, a Notice of Intent is required prior to any work beginning on an asbestos demolition. The federal NESHAP regulation also includes specific notification, work practice, packaging, labeling, and disposal requirements.

Underground Storage Tanks

A registered UST site assessor will need to conduct a site assessment/check at the time any regulated UST is removed from the site. Regulated tank removal regulations include specifics on appropriate notification, closure, and reporting procedures that should be followed throughout the excavation process.

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South Park Bridge Project

Hazardous Materials Technical Report Appendices



Prepared for the
King County
Department of Transportation
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Seattle, Washington 98104

Prepared by
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February 2004

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The EDR Radius Map with GeoCheck®

**South Park Bridge
16th Ave South
Seattle, WA 98101**

Inquiry Number: 806613.2s

June 28, 2002

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

16TH AVE SOUTH
SEATTLE, WA 98101

COORDINATES

Latitude (North): 47.528380 - 47° 31' 42.2"
Longitude (West): 122.314450 - 122° 18' 52.0"
Universal Transverse Mercator: Zone 10
UTM X (Meters): 551604.8
UTM Y (Meters): 5263893.0

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property: 2447122-E3 SEATTLE SOUTH, WA
Source: USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System

STATE ASTM STANDARD

SWF/LF..... Solid Waste Facility Database

FEDERAL ASTM SUPPLEMENTAL

CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

EXECUTIVE SUMMARY

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the target property includes a tolerance of +/- 10 feet. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL ASTM STANDARD

CERCLIS-NFRAP: As of February 1995. CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund Action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

A review of the CERC-NFRAP list, as provided by EDR, and dated 02/14/2002 has revealed that there are 5 CERC-NFRAP sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<i>MALARKEY ASPHALT CO</i>	<i>8700 DALLAS AV S</i>	<i>1/8 - 1/4 SE</i>	<i>E17</i>	<i>15</i>
<i>BOEING PLANT 2</i>	<i>7755 E MARGINAL WAY S</i>	<i>1/4 - 1/2 NNE</i>	<i>K49</i>	<i>45</i>
<i>ADVANCE ELECTROPLATING INC</i>	<i>9585 8TH AVE S</i>	<i>1/2 - 1 SSW</i>	<i>CD352</i>	<i>234</i>
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<i>AIRCO WELDING PRODUCTS</i>	<i>7700 14TH AV S</i>	<i>1/4 - 1/2 N</i>	<i>O71</i>	<i>72</i>
<i>SEATTLE CITY SOUTH RECYCLING &</i>	<i>8100 2ND AVE S</i>	<i>1/2 - 1 WNW</i>	<i>BW323</i>	<i>216</i>

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 11/14/2001 has revealed that there are 3 CORRACTS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<i>BOEING PLANT 2</i>	<i>7755 E MARGINAL WAY S</i>	<i>1/4 - 1/2 NNE</i>	<i>K49</i>	<i>45</i>
<i>BOEING D&SG / MFC SITE</i>	<i>1008 E MARGINAL WAY S</i>	<i>1/4 - 1/2 E</i>	<i>80</i>	<i>76</i>
<i>PENBERTHY ELECTROMELT INTL INC</i>	<i>631 S 96TH ST</i>	<i>1/2 - 1 SW</i>	<i>CN392</i>	<i>262</i>

EXECUTIVE SUMMARY

RCRIS: The Resource Conservation and Recovery Act database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Act. The source of this database is the U.S. EPA.

A review of the RCRIS-TSD list, as provided by EDR, and dated 04/01/2002 has revealed that there are 2 RCRIS-TSD sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K49	45
PENBERTHY ELECTROMELT INTL INC	631 S 96TH ST	1/2 - 1 SW	CN392	262

RCRIS: The Resource Conservation and Recovery Act database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Act. The source of this database is the U.S. EPA.

A review of the RCRIS-LQG list, as provided by EDR, and dated 04/01/2002 has revealed that there are 9 RCRIS-LQG sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING SOUTH PARK	1420 S TRENTON	1/4 - 1/2 S	G26	26
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K49	45
PRECISION ENGINEERING	1231 S DIRECTOR	1/4 - 1/2 SSW	N68	64
PROFESSIONAL COATING INC	1705 S 93RD ST F22	1/2 - 1 SSE	AI143	118
PUGET SOUND COATINGS MACHINIST	9220 8TH AV S	1/2 - 1 SW	AN172	135

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LONG PAINTING CO 10TH AVE	8025 10TH AVE S	1/4 - 1/2 WNW	H31	30
BOEING NORTH BOEING FIELD	7500 E MARGINAL WAY	1/4 - 1/2 N	Q84	86
TRIM SYSTEMS OPERATING CO	701 S ORCHARD ST	1/2 - 1 NW	CC342	228
MAGNETIC & PENETRANT SERVICES	8135 1ST AVE S	1/2 - 1 W	CS412	278

RCRIS: The Resource Conservation and Recovery Act database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Act. The source of this database is the U.S. EPA.

A review of the RCRIS-SQG list, as provided by EDR, and dated 04/01/2002 has revealed that there are 148 RCRIS-SQG sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SPENCER INDUSTRIES INC	8410 DALLAS AVE S	1/8 - 1/4 W	B6	7
FRONTWATER SERVICES INC	8661 DALLAS AVE	1/8 - 1/4 SE	D13	10
BASIN OIL CO INC	8661 DALLAS AVE S	1/8 - 1/4 SE	D14	12
MALARKEY ASPHALT CO	8700 DALLAS AV S	1/8 - 1/4 SE	E17	15
ALLIED BOLT CO	8619 17TH AVE S	1/8 - 1/4 SE	E19	19
CASCADE ENTERPRISES	8709 14TH AVE S	1/8 - 1/4 S	F22	25
SCHAUER NORTHWEST INC	8819 14TH S	1/4 - 1/2 S	G27	27
AMERICAN BATHTUB REFINISHERS I	1412 S HENDERSON	1/4 - 1/2 S	J40	38
HEARTWOOD INC	1414 S DIRECTOR ST	1/4 - 1/2 S	62	62
SBC TECHNOLOGIES INC	9100 15TH PL S BLDG G S	1/4 - 1/2 S	M63	62
UNITOR SHIPS SVC INC 15TH PL	9100 15TH PL S STE A	1/4 - 1/2 S	M64	62
KASPAC CHIYODA PROPERTY	1237 S DIRECTOR ST	1/4 - 1/2 SSW	N66	63
BOEING D&SG / MFC SITE	1008 E MARGINAL WAY S	1/4 - 1/2 E	80	76
INDUSTRIAL AUTOMATION INC	1421 S 93RD ST	1/2 - 1 S	T92	92

EXECUTIVE SUMMARY

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
PROGRESSIVE MEDICAL CORP	1600 S 92ND AVE STE H	1/2 - 1 S	V96	97
GARY MERLINO CONSTRUCTION CO	9125 10TH AVE S	1/2 - 1 SSW	X107	101
THOMAS EQUIPMENT RENTAL	827 S DIRECTOR ST	1/2 - 1 SW	112	105
DUWAMISH MANOR	15TH AVE S & S 93RD ST	1/2 - 1 S	AC117	107
SEATTLE SCHOOL DIST 1 CONCORD	723 S CONCORD ST	1/2 - 1 WSW	AE122	109
US EPA TECHNICAL ASSISTANCE TE	1605 S 93RD BLDG E UNIT	1/2 - 1 S	AF125	110
OLSEN RODNEY	1605 S 93RD ST BLDG E U	1/2 - 1 S	AF126	111
DEOX	1605 S 93RD ST BLDG EC	1/2 - 1 S	AF127	111
DUWAMISH MANOR INDUSTRIAL PARK	1505 S 93RD	1/2 - 1 S	134	113
PROPULSION CONTROLS ENGINEERIN	1705 S 93RD ST F10	1/2 - 1 SSE	AI140	117
MORGAN TRUCKING INC SEATTLE	9228 10TH AVE S	1/2 - 1 SSW	AK146	122
MCKINSTRY CO S BARTON ST	855 S BARTON ST	1/2 - 1 SSW	149	123
ALL CITY AUTO WRECKING & SALES	9438 DES MOINES MEMORIA	1/2 - 1 SSW	156	125
SEATTLE CITY TRANSMISSION W SE	9200 8TH AVE S	1/2 - 1 SW	AN158	127
PUGET SOUND COATINGS INC	9400 8TH AVE S	1/2 - 1 SW	AN170	134
RASMUSSEN EQUIP CO	8727 5TH AVE S	1/2 - 1 WSW	180	140
BOEING AIR TRAFFIC CONTROL TOW	8200 E MARGINAL WAY S	1/2 - 1 ESE	209	156
DELTA MARINE INDUSTRIES INC	1608 S 96TH ST	1/2 - 1 SSE	BB219	162
AAAA MINI STORAGE	1421 S 96TH ST	1/2 - 1 S	247	174
PACIFIC UTILITY EQUIPMENT CO	1303 S 96TH ST	1/2 - 1 S	BH256	180
MCCAW FLIGHT OPERATIONS	7777 PERIMETER RD S	1/2 - 1 NE	BM272	188
M A SEGALE INC	SEATTLE ASPHALT PLANT	1/2 - 1 SSW	BN276	190
US WEST COMMUNICATIONS W00D04	7679 PERIMETER RD S	1/2 - 1 NE	BO279	191
US DOT FAA SEATTLE HUB AFS	7675 PERIMETER RD S	1/2 - 1 NE	BO283	195
FLIGHTCRAFT INC SEATTLE	8285 PERIMETER RD S	1/2 - 1 ENE	BP285	195
BURLINGTON RESOURCE AVIATION	7777 PERIMETER RD HANGA	1/2 - 1 E	287	201
FEDERAL EXPRESS PERIMETER RD S	7607 PERIMETER RD S	1/2 - 1 NE	BQ289	201
CONTRACT APPLICATIONS INC SEAT	7600 PERIMETER RD	1/2 - 1 NE	BQ294	203
ARMORED TRANSPORT MAINTENANCE	7595 PERIMETER RD	1/2 - 1 NE	BQ295	204
AMERIFLIGHT INC HANGER 5	7585 PERIMETER RD S	1/2 - 1 NE	BQ296	204
SEA PAC RESOURCES INC	8465 PERIMETER RD S	1/2 - 1 ENE	BS307	207
FEDEX BFI VM	7440 PERIMETER RD S	1/2 - 1 NE	309	208
TERREL SOMMERS INC	9508 8TH AVE S	1/2 - 1 SSW	317	212
BOEING S&CS ELECTRONIC MFG FAC	7355 PERIMETER RD S	1/2 - 1 NE	BU319	212
AIR NATIONAL	7277 PERIMETER RD S 215	1/2 - 1 NE	328	221
SUPERIOR PRECISION ANALYTICAL	309 S CLOVERDALE ST STE	1/2 - 1 WSW	BY332	223
MAGNETIC PENETRANT SVCS CO	309 S CLOVERDALE ST UNI	1/2 - 1 WSW	BY333	224
DISCOUNT DRIVE AXLE OF SEATTLE	309 S CLOVERDALE ST STE	1/2 - 1 WSW	BY334	225
GALVIN FLYING SVC	7205 PERIMETER RD S	1/2 - 1 NNE	BZ337	226
ADVANCE ELECTROPLATING INC	9585 8TH AVE S	1/2 - 1 SSW	CD352	234
GALVIN FLYING SERVICE	6987 PERIMETER RD S	1/2 - 1 NNE	354	241
CONTAINER CARE PUGET SOUND	9600 8TH AVE S	1/2 - 1 SSW	CD355	242
NORTHWEST GRATING PRODUCTS INC	9230 4TH AVE S	1/2 - 1 SW	358	243
SCREEN MATIC ARTS	9354 4TH AVE S	1/2 - 1 SW	388	258
PENBERTHY ELECTROMELT INTL INC	631 S 96TH ST	1/2 - 1 SW	CN392	262
ALLIED BODY WORKS INC	625 S 96TH ST	1/2 - 1 SW	CN393	267
SEATTLE HOUSING AUTHORITY 4TH	9400 4TH AVE S	1/2 - 1 SW	CR404	274
COLLINS AVIATION	6660 PERIMETER RD S BOE	1/2 - 1 NNE	421	285
THAW CORP	8300 MILITARY RD S	1/2 - 1 ENE	CX428	288
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SHAWNEE PAINTING SANDBLASTIN	8107 10TH AVE S	1/4 - 1/2 WNW	H29	28
LONG INTERSTATE A JOINT VENTUR	8025 10TH AVE S	1/4 - 1/2 WNW	H33	35
AIRCO WELDING PRODUCTS	7700 14TH AV S	1/4 - 1/2 N	O71	72
S KENYON ST	832 S KENYON ST	1/4 - 1/2 WNW	P74	73

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
REAMCO ELECTRONICS	817 S KENYON	1/4 - 1/2 WNW	P75	73
SERVICE SPECIALTIES INC	800 S KENYON ST	1/4 - 1/2 WNW	P79	75
WORKBOATS NORTHWEST INC	7814 8TH AVE S	1/4 - 1/2 NW	R87	89
HUSSMAN REFRIGERATION INC	7440 W MARGINAL WAY S	1/2 - 1 N	S89	91
FOSS ENVIRONMENTAL SERVICES CO	7440 W MARGINAL WAY S	1/2 - 1 N	S90	91
DUWAMISH RIVER SLIP 4	SLIP 4 DUWAMISH RIVER	1/2 - 1 NNW	91	91
INTERSTATE COATINGS	754 S CHICAGO	1/2 - 1 WNW	U94	93
YALE MATERIALS HANDLING NW INC	8101 7TH AVE S	1/2 - 1 WNW	W102	99
SOUTH PARK TRUCK & TRAILER REP	722 S CHICAGO ST	1/2 - 1 WNW	Y114	106
LE TRACON ENVIRONMENTAL INC	7343 E MARGINAL WAY S	1/2 - 1 NNW	AD118	107
EMERALD SERVICES	7343 E MARGINAL WAY S	1/2 - 1 NNW	AD120	109
WASHINGTON LIFTRUCK INC	700 S CHICAGO ST	1/2 - 1 WNW	AG132	113
SNYDER INDUSTRIES INC	524 S SOUTHERN	1/2 - 1 W	133	113
LUKAS MACHINE INC	707 S RIVERSIDE DR	1/2 - 1 NW	AH135	114
WEST COAST WIRE ROPE RIGGING	7777 7TH AVE S	1/2 - 1 WNW	AG136	114
HURLEN CONSTRUCTION	700 S RIVERSIDE DR	1/2 - 1 NW	AH138	116
HANSEN MACHINE CORP SEATTLE	712 S PORTLAND ST	1/2 - 1 NW	139	116
ABC METAL FINISHING	501 ELMGROVE S	1/2 - 1 WNW	152	124
BROWN ENGINEERING	550 S MONROE ST	1/2 - 1 WNW	AM154	125
MANITOWAK WESTERN	8250 5TH AVE S	1/2 - 1 W	AO163	129
5TH AVE S SULLIVAN	5TH AVE S & SULLIVAN	1/2 - 1 W	AP164	130
LONG PAINTING CO 5TH AVE	8230 5TH AVE S	1/2 - 1 W	AO165	130
5TH AVE S SITE	8229 5TH AVE S	1/2 - 1 W	AO168	133
VICTORY AUTO BUMPERS INC	526 S MONROE ST	1/2 - 1 WNW	AM175	139
S HOLDEN ABANDONED CONTAINER	750 BLK S HOLDEN ST AT	1/2 - 1 NW	182	141
SAMSON TUG & BARGE CO INC	7400 8TH AVE S	1/2 - 1 NNW	AS187	143
SERVICE SPECIALTIES INC 8TH AV	7400 8TH AVE S	1/2 - 1 NNW	AS188	143
CROWLEY MARINE SERVICES INC 8T	7400 8TH AVE S	1/2 - 1 NNW	AS189	144
DC TOOLING REPAIR	582 S RIVERSIDE DR	1/2 - 1 NW	199	153
ELLIOTT BAY IND CONST	470 S KENYON ST	1/2 - 1 WNW	AV200	153
MILL ENGINEERING & SUPPLY CO	516 S CHICAGO	1/2 - 1 WNW	AR202	154
ROGERS MACHINERY CO INC	7800 5TH AVE S	1/2 - 1 WNW	AW205	155
PIPE SPECIALITIES INC	531 S PORTLAND	1/2 - 1 WNW	AX207	155
EMERSON POWER PRODUCTS INC	426 S CLOVERDALE ST	1/2 - 1 W	AY208	156
PUGET SOUND TRK LINES SEA	7303 8TH AVE S	1/2 - 1 NNW	AZ214	159
GEAR WORKS SEATTLE INC	500 S PORTLAND ST	1/2 - 1 WNW	AX216	160
S CHICAGO ST DUMP	251 S CHICAGO ST	1/2 - 1 WNW	BA218	162
8TH S	7130 8TH S	1/2 - 1 NNW	BC226	166
NELSON TRUCKING CO INC	7130 8TH AVE S	1/2 - 1 NNW	BC227	166
PACIFIC TERMINALS LIMITED	660 S OTHELLO	1/2 - 1 NW	BE231	169
NORTHWEST CONTAINER SVCS INC S	600 S GARDEN ST	1/2 - 1 NW	306	207
COLOUR SYSTEMS INTL LLC	1017 S MYRTLE ST	1/2 - 1 NNW	BT312	210
COASTAL ALASKA MARINE LINES	745 S ORCHARD ST	1/2 - 1 NNW	322	216
SEATTLE CITY SOUTH RECYCLING &	8100 2ND AVE S	1/2 - 1 WNW	BW323	216
ATC DISTRIBUTION GROUP	401 S WEBSTER	1/2 - 1 NW	BX327	220
UNITED IRON WORKS INC	7421 5TH AVE S	1/2 - 1 NW	BV330	223
GO DAN INDUSTRIES SEATTLE	7951 2ND AVE S	1/2 - 1 WNW	CA336	225
FORMULA CORP.	7901 2ND AVE. S.	1/2 - 1 WNW	CA339	226
ROYAL LINE CABINET CO SEATTLE	700 S ORCHARD ST	1/2 - 1 NW	CC343	229
ORCHARD ST DRUMS	701 S ORCHARD	1/2 - 1 NW	CC344	230
CUNNINGHAM MFG CO INC	318 S WEBSTER ST	1/2 - 1 NW	345	230
TYEE INDUSTRIES	765 S MYRTLE ST	1/2 - 1 NNW	346	231
SEATTLE SLUDGE INTERIM PROJECT	7417 4TH AVE S	1/2 - 1 NW	353	240
GUINNS AUTOMOTIVE & ELECTRIC	245 S AUSTIN	1/2 - 1 WNW	CE357	242
NORTH STAR ICE EQUIPMENT INC	8151 OCCIDENTAL AVE S	1/2 - 1 W	CF360	243
WA DNR CORSON AVE SITE HAT BOO	6800 E MARGINAL WAY & C	1/2 - 1 NNW	367	247

EXECUTIVE SUMMARY

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
COMMERCIAL WELDING & FABRICATI	711 S MYRTLE ST	1/2 - 1 NNW	CI370	248
INTERNATIONAL CONSTRUCTION EQU	8101 OCCIDENTAL AVE S	1/2 - 1 W	CJ371	249
TRANSFER STA BARREL	8100 OCCIDENTAL AVE S 0	1/2 - 1 W	CJ372	249
RSTS KENYON ST	130 S KENYON ST	1/2 - 1 WNW	CK374	251
BOYER ALASKA BARGE LINES INC	7318 4TH AVE S	1/2 - 1 NW	377	254
SEATTLE IRON METALS CORP MYRTL	601 S MYRTLE ST	1/2 - 1 NW	CL380	255
PROFESSIONAL SERVICE INDUSTRIE	7400 3RD AVE S	1/2 - 1 NW	384	256
LIQUID AIR CORP OF N AMERICA	7500 2ND AVE S	1/2 - 1 WNW	CM387	258
PACIFIC AMERICAN COMMERCIAL CO	7400 2ND AVE S	1/2 - 1 WNW	CM389	259
WE PAINTERS INC	110 S KENYON	1/2 - 1 WNW	390	259
WG CLARK CONSTRUCTION OCCIDENT	7958 OCCIDENTAL AVE S	1/2 - 1 WNW	CO394	267
USWCOM SEATTLE DUWAMISH CO	7000 E MARGINAL WAY S	1/2 - 1 NNW	CP400	272
INTERNATIONAL LUBRICANTS INC	7930 OCCIDENTAL S	1/2 - 1 WNW	CO401	273
SOUTH PARK TRUCK TRAILER REP	7265 2ND AVE S	1/2 - 1 NW	CQ402	273
NW ENVIROSERVICE 1ST AVE SITE	8105 1ST AVE S	1/2 - 1 W	CS407	276
KELLY RYAN INC SOUTH PARK	7235 2ND AVE S	1/2 - 1 NW	CQ409	277
PATENT CONSTRUCTION SYSTEMS	8111 1ST AVE S	1/2 - 1 W	CS410	277
BJ TRUCK WRECKING	7225 2ND AVE S	1/2 - 1 NW	CQ411	278
STANDARD STEEL FABRICATING CO	8155 1ST AVE S	1/2 - 1 W	CT415	282
TW EXPRESS	7901 1ST AVE	1/2 - 1 W	CU416	282
RECYCLE AMERICA	7901 1ST AVE S CLEAN UP	1/2 - 1 W	CU417	283
WASTE MANAGEMENT OF SEATTLE 1S	7901 1ST AVE S	1/2 - 1 W	CU420	284
ALL ALASKAN SEAFOODS INC	501 S MYRTLE ST	1/2 - 1 NW	CV424	286
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288
1ST KENYON DRUM	1ST AVE S & SW KENYON S	1/2 - 1 WNW	430	291

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 12/31/2000 has revealed that there are 18 ERNS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
7755 E MARGINAL WAY 3-369 BLDG	7755 E MARGINAL WAY 3-3	1/4 - 1/2 NNE	I35	37
PLANT #2 7755 EAST MARGINAL WA	PLANT #2 7755 EAST MARG	1/4 - 1/2 NNE	I36	37
7755 EAST MARGINAL WAY	7755 EAST MARGINAL WAY	1/4 - 1/2 NNE	K46	44
7755 E MARGINAL WAY	7755 E MARGINAL WAY	1/4 - 1/2 NNE	K48	45
7755 EAST MARGINAL WAY SOUTH	7755 EAST MARGINAL WAY	1/4 - 1/2 NNE	K50	54
7755 EAST MARGINAL WAY S NW AR	7755 EAST MARGINAL WAY	1/4 - 1/2 NNE	K52	55
9228 10TH AVE. SO.	9228 10TH AVE. SO.	1/2 - 1 SSW	AK148	123
1801 S. 93RD	1801 S. 93RD	1/2 - 1 SSE	AL150	124
1801 SOUTH 93RD ST IN THE DUWA	1801 SOUTH 93RD ST IN T	1/2 - 1 SSE	AL151	124
S 96TH ST & DESMOINES WAY	S 96TH ST & DESMOINES W	1/2 - 1 S	257	181
1115 S. 96 TH ST.	1115 S. 96 TH ST.	1/2 - 1 SSW	BN274	189
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
7700 EAST MARGINAL WAY S	7700 EAST MARGINAL WAY	1/4 - 1/2 N	L59	61
7700 E. MARGINAL WAY SOUTH	7700 E. MARGINAL WAY SO	1/4 - 1/2 N	L60	61
7500 EAST MARGINAL LANE SOUTH	7500 EAST MARGINAL LANE	1/4 - 1/2 N	Q82	79
7500 E MARGINAL WAY S	7500 E MARGINAL WAY S	1/4 - 1/2 N	Q86	89
7400 8TH AVE SOUTH	7400 8TH AVE SOUTH	1/2 - 1 NNW	AS190	144
401 SOUTH WEBSTER	401 SOUTH WEBSTER	1/2 - 1 NW	BX326	220
601 SOUTH MYRTLE STREET	601 SOUTH MYRTLE STREET	1/2 - 1 NW	CL379	255

EXECUTIVE SUMMARY

STATE ASTM STANDARD

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, has revealed that there are 26 CSCSL sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SPENCER INDUSTRIES INC	8410 DALLAS AVE S	1/8 - 1/4 W	B6	7
MALARKEY ASPHALT CO	8700 DALLAS AV S	1/8 - 1/4 SE	E17	15
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K44	41
S 96TH ST DITCH	S 96TH ST DUWAMISH RI	1/2 - 1 SSE	258	181
BOEING S&CS ELECTRONIC MFG FAC	7355 PERIMETER RD S	1/2 - 1 NE	BU319	212
BOEING ELECTRONIC MFG	7300 PERIMETER RD S	1/2 - 1 NE	BU321	215
AIR NATIONAL	7277 PERIMETER RD S 215	1/2 - 1 NE	328	221
AMERICAN AVIONICS KING CNTY AI	7023 PERIMETER RD S	1/2 - 1 NNE	CB347	231
ADVANCE ELECTROPLATING INC	9585 8TH AVE S	1/2 - 1 SSW	CD352	234
TOXGON CORP SEATTLE	631 S 96TH ST	1/2 - 1 SW	CN391	260
SELLAND AUTO TRANSPORT, INC	615 S 96TH ST	1/2 - 1 SW	CN396	268
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LONG PAINTING CO 10TH AVE	8025 10TH AVE S	1/4 - 1/2 WNW	H31	30
BOC GASES 14TH AVE	7700 14TH AVE S	1/4 - 1/2 N	O70	68
DUWAMISH RIVER SLIP 4	SLIP 4 DUWAMISH RIVER	1/2 - 1 NNW	91	91
INTERSTATE COATINGS	754 S CHICAGO	1/2 - 1 WNW	U94	93
BOEING NORTH FIELD	7370 E MARGINAL WAY S	1/2 - 1 N	Z109	102
MANITOWAK WESTERN	8250 5TH AVE S	1/2 - 1 W	AO162	128
BOEING NORTH FIELD JP4 TANKS	ELLIS AVE E MARGINAL	1/2 - 1 NNW	BG243	172
STERNOFF METALS	7201 E MARGINAL WY S	1/2 - 1 NNW	BI250	177
SEATTLE S TRANSFER STA	8100 2ND AV S	1/2 - 1 WNW	BW325	218
RYDER STUDENT TRANSPORTATION S	130 S KENYON ST	1/2 - 1 WNW	CK375	251
MYRTLE STREET PROPERTY	606 S MYRTLE ST	1/2 - 1 NW	CL376	253
DUWAMISH CO 070952	7000 E MARGINAL WAY	1/2 - 1 NNW	CP399	271
NORTHWEST ENVIROSERVICE 2	8105 1ST AVE S	1/2 - 1 W	CS406	275
EASTERN SUPPLY CO	7745 1ST AVE S	1/2 - 1 WNW	CW426	286
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288

HSL: The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

A review of the HSL list, as provided by EDR, and dated 02/26/2002 has revealed that there is 1 HSL site within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288

EXECUTIVE SUMMARY

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 03/13/2002 has revealed that there are 39 LUST sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SCOTT ANDREWS	8520 14TH AVE S	0 - 1/8 SSW	A3	5
STEPHANIE CROSBY PROPERTY	8621 14TH AVE S	1/8 - 1/4 S	C11	10
MALARKEY ASPHALT COMPANY	8700 DALLAS AVENUE SOUT	1/8 - 1/4 SE	E18	18
CHEVRON 98484	8700 14TH AVE S	1/8 - 1/4 S	F21	23
SCHAUER NORTHWEST INC	8819 14TH S	1/4 - 1/2 S	G27	27
ARTHUR J WARNER	9001 14 AVE SOUTH	1/4 - 1/2 S	J41	39
PLANT II	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K55	56
BUS AND AIR PARCEL SERVICE INC	9004 14TH SOUTH	1/4 - 1/2 S	J56	59
GARY MERLINO CONSTRUCTION CO.,	9125 10TH AVE S	1/2 - 1 SSW	X106	100
WEST SEATTLE #28	9200 8TH AVE SO	1/2 - 1 SW	AN157	126
DEVELOPMENTAL CENTER	9725 E MARGINAL WAY S	1/2 - 1 S	AT193	145
FRUEHAUF TRAILER SERVICES, INC	9426 8TH AVE S	1/2 - 1 SSW	248	175
SUNNYDALE CONSTRUCTION CO., IN	1119 S 96TH	1/2 - 1 SSW	BN273	188
M.A. SEGALE, INC.	1115 S 96TH	1/2 - 1 SSW	BN275	189
AVIATION METHODS, INC.	7675 PERIMETER RD S	1/2 - 1 NE	BO282	193
BFI FEDERAL EXPRESS STATION	7607 PERIMETER RD	1/2 - 1 NE	BQ292	202
SEATTLE AIR CORP	8535 PERIMETER RD S	1/2 - 1 ENE	BS310	209
GALVIN FLYING CENTER	7001 PERIMETER RD	1/2 - 1 NNE	CB348	232
SELLAND AUTO TRANSPORT, INC	615 S 96TH ST	1/2 - 1 SW	CN396	268
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
NORTH BOEING FIELD	7500 E MARGINAL WAY S	1/4 - 1/2 N	Q83	79
INTERSTATE COATINGS, INC.	754 S CHICAGO ST	1/2 - 1 WNW	U95	97
OLYMPIC STEEL DOOR	7800 7TH AVE S	1/2 - 1 WNW	AG130	112
HURLEN CONSTRUCTION COMPANY	700 SO RIVERSIDE DR/PO	1/2 - 1 NW	AH137	115
VIC MARKOV TIRE CO.	7300 E MARGINAL WY SO	1/2 - 1 NNW	AJ145	121
RAZORE ENTERPRISES	500 SOUTH SULLIVAN	1/2 - 1 W	AP166	131
MARINE LUMBER SERVICE - SHOP	558 S KENYON ST	1/2 - 1 WNW	169	133
605 SO RIVERSIDE DRIVE (MILLS	605 SO RIVERSIDE DRIVE	1/2 - 1 NW	AQ183	141
MARINE LUMBER SERVICE INC.	525 S CHICAGO ST /PO BO	1/2 - 1 WNW	AR186	142
ARCO FACILITY #05218	7200 E MARGINAL WAY S	1/2 - 1 NNW	AU197	151
PUGET SOUND TRUCK LINES INC	7303 8TH AVENUE SOUTH	1/2 - 1 NNW	AZ213	158
RASMUSSEN EQUIPMENT CO INC	415 SOUTH CLOVERDALE ST	1/2 - 1 W	AY217	161
GLITSA AMERICAN INCORPORATED	327 SOUTH KENYON STREET	1/2 - 1 WNW	BJ260	184
SEA.CTY LIGHT MYRTLE ST (EXEMP	1012 S MYRTLE ST	1/2 - 1 NNW	BT314	210
SEATTLE FIRE STATION 27	1000 S MYRTLE ST	1/2 - 1 NNW	BT316	211
ATC DISTRIBUTION GROUP	401 S WEBSTER	1/2 - 1 NW	BX327	220
ROYAL HYWAY TOURS	255 SOUTH HOLDEN ST.	1/2 - 1 WNW	CG361	244
TACOMA SEATTLE TRAILER REPAIR	150 S KENYON ST	1/2 - 1 WNW	CH362	245
RYDER STUDENT TRANSPORTATION S	130 S KENYON ST	1/2 - 1 WNW	CK375	251
WASTE MANAGEMENT OF SEATTLE	7901 1ST AVE S	1/2 - 1 W	CU418	283

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 03/13/2002 has revealed that there are 90 UST sites within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SCOTT ANDREWS	8520 14TH AVE S	0 - 1/8 SSW	A3	5
WILLARD S CROW	8604 DALLAS AVE. SOUTH	1/8 - 1/4 SSE	9	9
STEPHANIE CROSBY PROPERTY	8621 14TH AVE S	1/8 - 1/4 S	C11	10
MALARKEY ASPHALT COMPANY	8700 DALLAS AVENUE SOUT	1/8 - 1/4 SE	E18	18
CHEVRON 98484	8700 14TH AVE S	1/8 - 1/4 S	F21	23
AIR OIL PRODUCTS CORP	8801 14TH AVE SOUTH	1/4 - 1/2 S	G25	26
SCHAUER NORTHWEST INC	8819 14TH S	1/4 - 1/2 S	G27	27
TOM THURBER	1420 SOUTH HENDERSON ST	1/4 - 1/2 S	J38	38
ARTHUR J WARNER	9001 14 AVE SOUTH	1/4 - 1/2 S	J41	39
PLANT II	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K55	56
BUS AND AIR PARCEL SERVICE INC	9004 14TH SOUTH	1/4 - 1/2 S	J56	59
PETROCARD SYSTEMS, INC.	9014 14TH AVE S	1/4 - 1/2 S	J57	60
SEATTLE FIRE STATION 26	800 S CLOVERDALE ST	1/4 - 1/2 WSW	58	61
KASPAC CHIYODA PROPERTY	1237 S DIRECTOR ST	1/4 - 1/2 SSW	N66	63
PRECISION ENGINEERING INC.	1231 SOUTH DIRECTOR STR	1/4 - 1/2 SSW	N69	67
GARY MERLINO CONSTRUCTION CO.,	9125 10TH AVE S	1/2 - 1 SSW	X106	100
MORGAN TRUCKING, INC.	9228 10TH AVE S	1/2 - 1 SSW	AK147	122
MCKINSTRY CO S BARTON ST	855 S BARTON ST	1/2 - 1 SSW	149	123
WEST SEATTLE #28	9200 8TH AVE SO	1/2 - 1 SW	AN157	126
PUGET SOUND COATINGS INC	9400 8TH AVE S	1/2 - 1 SW	AN170	134
DEVELOPMENTAL CENTER	9725 E MARGINAL WAY S	1/2 - 1 S	AT193	145
WHITEHEAD COMPANY CORP.	600 SO MYRTLE ST PO BOX	1/2 - 1 S	AT206	155
ATLANTIC RICHFIELD COMPANY	9525 S 14TH AVE S	1/2 - 1 S	210	157
KING COUNTY AIRPORT	P O BOX 80245	1/2 - 1 NE	224	165
DESIMONE TRUST / HOMEPLACE	9365 7TH AVE S	1/2 - 1 SW	BD228	167
FRUEHAUF TRAILER SERVICES, INC	9426 8TH AVE S	1/2 - 1 SSW	248	175
CLARKLIFT OF WASHINGTON ALASKA	1313 S 96TH	1/2 - 1 S	BH249	176
NORDSTROM INC	7979 PERIMETER RD SO	1/2 - 1 NE	BK262	185
AERO-COPTERS, INC.	8013 PERIMETER RD S	1/2 - 1 NE	BK263	186
SUNNYDALE CONSTRUCTION CO., IN	1119 S 96TH	1/2 - 1 SSW	BN273	188
M.A. SEGAL, INC.	1115 S 96TH	1/2 - 1 SSW	BN275	189
AVIATION METHODS, INC.	7675 PERIMETER RD S	1/2 - 1 NE	BO282	193
MCCAW FLIGHT OPERATIONS, INC.	8285 PERIMETER RD S	1/2 - 1 ENE	BP286	199
BFI FEDERAL EXPRESS STATION	7607 PERIMETER RD	1/2 - 1 NE	BQ292	202
SEATTLE AIR CORP	8535 PERIMETER RD S	1/2 - 1 ENE	BS310	209
BOEING S&CS ELECTRONIC MFG FAC	7355 PERIMETER RD S	1/2 - 1 NE	BU319	212
GALVIN FLYING CENTER	7001 PERIMETER RD	1/2 - 1 NNE	CB350	233
ADVANCE ELECTROPLATING INC	9585 8TH AVE S	1/2 - 1 SSW	CD352	234
TEXACO INC	7000 AIRPORT ROAD SOUTH	1/2 - 1 NNE	373	250
SELLAND AUTO TRANSPORT, INC	615 S 96TH ST	1/2 - 1 SW	CN396	268
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LONG PAINTING COMPANY	8025 10TH AVE S	1/4 - 1/2 WNW	H30	29
BOC GASES, DIV OF BOC GROUP, I	7700 14TH S	1/4 - 1/2 N	O72	72
WEST FORK NELSON	7918 8TH AVE S	1/4 - 1/2 WNW	P76	74
WESTFORK NELSON INCORPORATED	7916 8TH AVE S	1/4 - 1/2 WNW	P77	74
WFI	800 S KENYON	1/4 - 1/2 WNW	P78	74
NORTH BOEING FIELD	7500 E MARGINAL WAY S	1/4 - 1/2 N	Q83	79
INTERSTATE COATINGS, INC.	754 S CHICAGO ST	1/2 - 1 WNW	U95	97
SEIDELHUBER IRON & BRONZE WORK	8009 7TH AVE S	1/2 - 1 WNW	105	100
NORTHERN FREIGHT LINES INC	730 SO. CHICAGO STREET	1/2 - 1 WNW	Y108	102
EVERGREEN MARINE LEASING	7343 E MARGINAL WAY	1/2 - 1 NNW	AD119	108
OLYMPIC STEEL DOOR	7800 7TH AVE S	1/2 - 1 WNW	AG130	112
HURLEN CONSTRUCTION COMPANY	700 SO RIVERSIDE DR/PO	1/2 - 1 NW	AH137	115
VIC MARKOV TIRE CO.	7300 E MARGINAL WY SO	1/2 - 1 NNW	AJ145	121

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<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
MANITOWOC WESTERN COMPANY, INC	8250 5TH AVE S	1/2 - 1 W	AO161	128
RAZORE ENTERPRISES	500 SOUTH SULLIVAN	1/2 - 1 W	AP166	131
MARINE LUMBER SERVICE - SHOP	558 S KENYON ST	1/2 - 1 WNW	169	133
CUSTOM ROOFING, INC.	8001 5TH AVE S	1/2 - 1 WNW	179	140
605 SO RIVERSIDE DRIVE (MILLS	605 SO RIVERSIDE DRIVE	1/2 - 1 NW	AQ183	141
ARCO FACILITY #05218	7200 E MARGINAL WAY S	1/2 - 1 NNW	AU197	151
MARINE LUMBER SERVICE INC.	525 S CHICAGO ST /PO BO	1/2 - 1 WNW	AR198	152
ELLIOTT BAY INDUSTRIES INC.	470 SO KENYON ST.	1/2 - 1 WNW	AV201	154
PUGET SOUND TRUCK LINES INC	7303 8TH AVENUE SOUTH	1/2 - 1 NNW	AZ213	158
RASMUSSEN EQUIPMENT CO INC	415 SOUTH CLOVERDALE ST	1/2 - 1 W	AY217	161
MODERN IRON & STEEL INC	7619 5TH AVE SO.	1/2 - 1 NW	BF233	169
REMARKABLE TIRE	7115 E MARGINAL WAY S	1/2 - 1 NNW	BG254	179
BUDGET PROPERTIES	7115 E MARGINAL WAY	1/2 - 1 NNW	BG255	180
GLITSA AMERICAN INCORPORATED	327 SOUTH KENYON STREET	1/2 - 1 WNW	BJ260	184
RED-D INC	7510 5TH AVE SO	1/2 - 1 NW	261	185
SEA.CTY LIGHT MYRTLE ST (EXEMP	1012 S MYRTLE ST	1/2 - 1 NNW	BT314	210
SEATTLE FIRE STATION 27	1000 S MYRTLE ST	1/2 - 1 NNW	BT316	211
FERGUSON CONSTRUCTION	7433 5TH AVE S	1/2 - 1 NW	BV320	214
CITY OF SEATTLE SOLID WASTE DI	8100 2ND AVE S	1/2 - 1 WNW	BW324	217
ATC DISTRIBUTION GROUP	401 S WEBSTER	1/2 - 1 NW	BX327	220
UNITED IRON WORKS INC	7421 5TH AVE SO	1/2 - 1 NW	BV331	223
OCEAN TERMINALS INC	8151 OCCIDENTAL AVE SOU	1/2 - 1 W	CF359	243
ROYAL HYWAY TOURS	255 SOUTH HOLDEN ST.	1/2 - 1 WNW	CG361	244
TACOMA SEATTLE TRAILER REPAIR	150 S KENYON ST	1/2 - 1 WNW	CH362	245
RICHARD DONDERO	7047 E MARGINAL WAY S	1/2 - 1 NNW	364	246
NELSON TRUCKING CO. LEASEWAY C	719 SO. MYRTLE ST	1/2 - 1 NNW	CI366	246
BESCO ROOFING INC	233 S HOLDEN STREET	1/2 - 1 WNW	CG368	247
RYDER STUDENT TRANSPORTATION S	130 S KENYON ST	1/2 - 1 WNW	CK375	251
MANSON CONSTRUCTION CO	601 S MYRTLE ST	1/2 - 1 NW	CL382	256
PROFESSIONAL SERVICE INDUSTRIE	7400 3RD AVE S	1/2 - 1 NW	384	256
LIQUID AIR CORP.	7500 2ND AVE. SOUTH	1/2 - 1 WNW	CM385	257
SAFWAY STEEL PRODUCTS	7501 2ND AVE SOUTH	1/2 - 1 WNW	CM386	257
DUWAMISH CO 070952	7000 E MARGINAL WAY	1/2 - 1 NNW	CP399	271
STANDARD STEEL FABRICATING CO	8155 1ST AVE SO	1/2 - 1 W	CT413	281
WASTE MANAGEMENT OF SEATTLE	7901 1ST AVE S	1/2 - 1 W	CU418	283
SEATTLE BOILER WORKS, INC.	500 SOUTH MYRTLE ST.	1/2 - 1 NW	CV425	286
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288

FEDERAL ASTM SUPPLEMENTAL

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 03/21/2002 has revealed that there are 182 FINDS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
RICKS MASTER MARINE INC	1411 S THISTLE ST	0 - 1/8 WNW	1	5

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<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
FRONTWATER SERVICES INC	8661 DALLAS AVE	1/8 - 1/4 SE	D13	10
BASIN OIL CO INC	8661 DALLAS AVE S	1/8 - 1/4 SE	D14	12
MALARKEY ASPHALT CO INC	8700 DALLAS AVE S	1/8 - 1/4 SE	E16	14
MALARKEY ASPHALT CO	8700 DALLAS AV S	1/8 - 1/4 SE	E17	15
ALLIED BOLT CO	8619 17TH AVE S	1/8 - 1/4 SE	E19	19
CASCADE ENTERPRISES	8709 14TH AVE S	1/8 - 1/4 S	F22	25
BOEING SOUTH PARK	1420 S TRENTON	1/4 - 1/2 S	G26	26
SCHAUER NORTHWEST INC	8819 14TH S	1/4 - 1/2 S	G27	27
AMERICAN BATHTUB REFINISHERS I	1412 S HENDERSON	1/4 - 1/2 S	J39	38
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K49	45
HEARTWOOD INC	1414 S DIRECTOR ST	1/4 - 1/2 S	62	62
SBC TECHNOLOGIES INC	9100 15TH PL S BLDG G S	1/4 - 1/2 S	M63	62
UNITOR SHIPS SVC INC 15TH PL	9100 15TH PL S STE A	1/4 - 1/2 S	M65	63
KASPAC CHIYODA PROPERTY	1237 S DIRECTOR ST	1/4 - 1/2 SSW	N66	63
PRECISION ENGINEERING	1231 S DIRECTOR	1/4 - 1/2 SSW	N68	64
BOEING D&SG / MFC SITE	1008 E MARGINAL WAY S	1/4 - 1/2 E	80	76
INDUSTRIAL AUTOMATION INC	1421 S 93RD ST	1/2 - 1 S	T92	92
PROGRESSIVE MEDICAL CORP	1600 S 92ND AVE STE H	1/2 - 1 S	V96	97
AHRENIUS MANUFACTURING INC	1425 S 93RD	1/2 - 1 S	T101	99
GARY MERLINO CONSTRUCTION CO	9125 10TH AVE S	1/2 - 1 SSW	X107	101
PSF MECHANICAL INC	9322 14TH AVE S	1/2 - 1 S	AA111	105
THOMAS EQUIPMENT RENTAL	827 S DIRECTOR ST	1/2 - 1 SW	112	105
PSF INDUSTRIES INC FIELD YARD	9332 14TH AVE S	1/2 - 1 S	AA115	106
DUWAMISH MANOR	15TH AVE S & S 93RD ST	1/2 - 1 S	AC117	107
SEATTLE SCHOOL DIST 1 CONCORD	723 S CONCORD ST	1/2 - 1 WSW	AE121	109
FEDERAL EXPRESS CORP BFI	9320 15TH AVE S	1/2 - 1 S	AC123	110
DESIGN DIRECT SOUND INC	9320 15TH AVE S UNITS C	1/2 - 1 S	AC124	110
US EPA TECHNICAL ASSISTANCE TE	1605 S 93RD BLDG E UNIT	1/2 - 1 S	AF125	110
OLSEN RODNEY	1605 S 93RD ST BLDG E U	1/2 - 1 S	AF126	111
DEOX	1605 S 93RD ST BLDG EC	1/2 - 1 S	AF128	111
DUWAMISH MANOR INDUSTRIAL PARK	1505 S 93RD	1/2 - 1 S	134	113
PROPULSION CONTROLS ENGINEERIN	1705 S 93RD ST F10	1/2 - 1 SSE	AI140	117
PROFESSIONAL COATING INC	1705 S 93RD ST F22	1/2 - 1 SSE	AI143	118
MORGAN TRUCKING INC SEATTLE	9228 10TH AVE S	1/2 - 1 SSW	AK146	122
MCKINSTRY CO S BARTON ST	855 S BARTON ST	1/2 - 1 SSW	149	123
GLOBAL INTERMODAL SYSTEMS	1818 S 93RD ST	1/2 - 1 SSE	AL153	125
ALL CITY AUTO WRECKING & SALES	9438 DES MOINES MEMORIA	1/2 - 1 SSW	156	125
SEATTLE CITY TRANSMISSION W SE	9200 8TH AVE S	1/2 - 1 SW	AN158	127
PUGET SOUND COATINGS MACHINIST	9220 8TH AV S	1/2 - 1 SW	AN172	135
RASMUSSEN EQUIP CO	8727 5TH AVE S	1/2 - 1 WSW	180	140
BOEING AIR TRAFFIC CONTROL TOW	8200 E MARGINAL WAY S	1/2 - 1 ESE	209	156
DELTA MARINE INDUSTRIES INC	1608 S 96TH ST	1/2 - 1 SSE	BB219	162
AAAA MINI STORAGE	1421 S 96TH ST	1/2 - 1 S	247	174
PACIFIC UTILITY EQUIPMENT CO	1303 S 96TH ST	1/2 - 1 S	BH256	180
SEATTLE CITY LIGHT MUNICIPAL B	7777 PERIMETER RD	1/2 - 1 NE	BM266	186
MCCAW FLIGHT OPERATIONS	7777 PERIMETER RD S	1/2 - 1 NE	BM268	187
OTTER CORP (IMPORTER)	7777 PERIMETER RD S	1/2 - 1 NE	BM270	187
M A SEGAL INC	SEATTLE ASPHALT PLANT	1/2 - 1 SSW	BN276	190
US WEST COMMUNICATIONS WOOD04	7679 PERIMETER RD S	1/2 - 1 NE	BO279	191
US DOT FAA SEATTLE HUB AFS	7675 PERIMETER RD S	1/2 - 1 NE	BO283	195
FLIGHTCRAFT INC SEATTLE	8285 PERIMETER RD S	1/2 - 1 ENE	BP285	195
BURLINGTON RESOURCE AVIATION	7777 PERIMETER RD HANGA	1/2 - 1 E	287	201
FEDERAL EXPRESS PERIMETER RD S	7607 PERIMETER RD S	1/2 - 1 NE	BQ289	201
CONTRACT APPLICATIONS INC SEAT	7600 PERIMETER RD	1/2 - 1 NE	BQ294	203
ARMORED TRANSPORT MAINTENANCE	7595 PERIMETER RD	1/2 - 1 NE	BQ295	204
AMERIFLIGHT INC HANGER 5	7585 PERIMETER RD S	1/2 - 1 NE	BQ296	204

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<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
UPS BOEING FIELD	7575 PERIMETER RD S	1/2 - 1 NE	BQ299	205
SEA PAC RESOURCES INC	8465 PERIMETER RD S	1/2 - 1 ENE	BS307	207
FEDEX BFI VM	7440 PERIMETER RD S	1/2 - 1 NE	309	208
TERREL SOMMERS INC	9508 8TH AVE S	1/2 - 1 SSW	317	212
BOEING S&CS ELECTRONIC MFG FAC	7355 PERIMETER RD S	1/2 - 1 NE	BU319	212
AIR NATIONAL	7277 PERIMETER RD S 215	1/2 - 1 NE	328	221
MAGNETIC PENETRANT SVCS CO	309 S CLOVERDALE ST UNI	1/2 - 1 WSW	BY333	224
DISCOUNT DRIVE AXLE OF SEATTLE	309 S CLOVERDALE ST STE	1/2 - 1 WSW	BY334	225
KING CO INTL AIRPORT	7211 PERIMETER RD	1/2 - 1 NNE	BZ335	225
GALVIN FLYING SVC	7205 PERIMETER RD S	1/2 - 1 NNE	BZ337	226
GALVIN FLYING SERVICE INC	7149 PERIMETER RD S	1/2 - 1 NNE	340	228
ADVANCE ELECTROPLATING INC	9585 8TH AVE S	1/2 - 1 SSW	CD352	234
GALVIN FLYING SERVICE	6987 PERIMETER RD S	1/2 - 1 NNE	354	241
CONTAINER CARE PUGET SOUND	9600 8TH AVE S	1/2 - 1 SSW	CD355	242
NORTHWEST GRATING PRODUCTS INC	9230 4TH AVE S	1/2 - 1 SW	358	243
SCREEN MATIC ARTS	9354 4TH AVE S	1/2 - 1 SW	388	258
PENBERTHY ELECTROMELT INTL INC	631 S 96TH ST	1/2 - 1 SW	CN392	262
ALLIED BODY WORKS INC	625 S 96TH ST	1/2 - 1 SW	CN393	267
SELLAND AUTO TRANSPORT	615 S 96TH ST	1/2 - 1 SW	CN398	270
SEATTLE HOUSING AUTHORITY 4TH	9400 4TH AVE S	1/2 - 1 SW	CR403	274
COLLINS AVIATION	6660 PERIMETER RD S BOE	1/2 - 1 NNE	421	285
THAW CORP	8300 MILITARY RD S	1/2 - 1 ENE	CX427	288
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SHAWNEE PAINTING SANDBLASTIN	8107 10TH AVE S	1/4 - 1/2 WNW	H29	28
LONG PAINTING CO 10TH AVE	8025 10TH AVE S	1/4 - 1/2 WNW	H31	30
DUWAMISH RIV ADJ TO BOEING PLT	7700 E MARGINAL WAY S	1/4 - 1/2 N	L61	61
AIRCO WELDING PRODUCTS	7700 14TH AV S	1/4 - 1/2 N	O71	72
S KENYON ST	832 S KENYON ST	1/4 - 1/2 WNW	P74	73
REAMCO ELECTRONICS	817 S KENYON	1/4 - 1/2 WNW	P75	73
SERVICE SPECIALTIES INC	800 S KENYON ST	1/4 - 1/2 WNW	P79	75
BOEING NORTH BOEING FIELD	7500 E MARGINAL WAY	1/4 - 1/2 N	Q84	86
WORKBOATS NORTHWEST INC	7814 8TH AVE S	1/4 - 1/2 NW	R87	89
E M MATSON JR CO INC	7808 8TH AVE S	1/4 - 1/2 NW	R88	90
HUSSMAN REFRIGERATION INC	7440 W MARGINAL WAY S	1/2 - 1 N	S89	91
FOSS ENVIRONMENTAL SERVICES CO	7440 W MARGINAL WAY S	1/2 - 1 N	S90	91
DUWAMISH RIVER SLIP 4	SLIP 4 DUWAMISH RIVER	1/2 - 1 NNW	91	91
INTERSTATE COATINGS	754 S CHICAGO	1/2 - 1 WNW	U94	93
WESTEC INDUSTRIES INC	8111 7TH AVE S	1/2 - 1 WNW	W100	99
YALE MATERIALS HANDLING NW INC	8101 7TH AVE S	1/2 - 1 WNW	W102	99
EVERGREEN REFRIGERATION	727 S. KENYON STREET	1/2 - 1 WNW	104	100
SOUTH PARK TRUCK & TRAILER REP	722 S CHICAGO ST	1/2 - 1 WNW	Y114	106
TIERNEY ELECTRICAL MFG CO	7901 7TH AVE S	1/2 - 1 WNW	AB116	107
LE TRACON ENVIROMENTAL INC	7343 E MARGINAL WAY S	1/2 - 1 NNW	AD118	107
EMERALD SERVICES	7343 E MARGINAL WAY S	1/2 - 1 NNW	AD120	109
WASHINGTON LIFTRUCK INC	700 S CHICAGO ST	1/2 - 1 WNW	AG132	113
SNYDER INDUSTRIES INC	524 S SOUTHERN	1/2 - 1 W	133	113
LUKAS MACHINE INC	707 S RIVERSIDE DR	1/2 - 1 NW	AH135	114
WEST COAST WIRE ROPE RIGGING	7777 7TH AVE S	1/2 - 1 WNW	AG136	114
HURLEN CONSTRUCTION	700 S RIVERSIDE DR	1/2 - 1 NW	AH138	116
HANSEN MACHINE CORP SEATTLE	712 S PORTLAND ST	1/2 - 1 NW	139	116
ABC METAL FINISHING	501 ELMGROVE S	1/2 - 1 WNW	152	124
BROWN ENGINEERING	550 S MONROE ST	1/2 - 1 WNW	AM155	125
KING AUTO & TRUCK WRECKING	543 S. MONROE ST	1/2 - 1 WNW	AM159	127
MANITOWAK WESTERN	8250 5TH AVE S	1/2 - 1 W	AO163	129

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
5TH AVE S SULLIVAN	5TH AVE S & SULLIVAN	1/2 - 1 W	AP164	130
LONG PAINTING CO 5TH AVE	8230 5TH AVE S	1/2 - 1 W	AO165	130
US DISPOSAL	500 S SULLIVAN ST	1/2 - 1 W	AP167	132
5TH AVE S SITE	8229 5TH AVE S	1/2 - 1 W	AO168	133
VICTORY AUTO BUMPERS INC	526 S MONROE ST	1/2 - 1 WNW	AM175	139
AMERICAN PLASTICS	526 S. MONROE ST	1/2 - 1 WNW	AM176	139
CHEMITRON	521 S. MONROE ST	1/2 - 1 WNW	AM177	139
S HOLDEN ABANDONED CONTAINER	750 BLK S HOLDEN ST AT	1/2 - 1 NW	182	141
SAMSON TUG & BARGE CO INC	7400 8TH AVE S	1/2 - 1 NNW	AS187	143
SERVICE SPECIALTIES INC 8TH AV	7400 8TH AVE S	1/2 - 1 NNW	AS188	143
NORTHLAND SERVICES INC TRANSFE	7400 8TH AVE S TRANSFER	1/2 - 1 NNW	AS191	144
DC TOOLING REPAIR	582 S RIVERSIDE DR	1/2 - 1 NW	199	153
ELLIOTT BAY IND CONST	470 S KENYON ST	1/2 - 1 WNW	AV200	153
MILL ENGINEERING & SUPPLY CO	516 S CHICAGO	1/2 - 1 WNW	AR202	154
ROGERS MACHINERY CO INC	7800 5TH AVE S	1/2 - 1 WNW	AW203	154
ROCKWELL AUTOMATION	500 S. CHICAGO ST	1/2 - 1 WNW	AW204	154
PIPE SPECIALITIES INC	531 S PORTLAND	1/2 - 1 WNW	AX207	155
EMERSON POWER PRODUCTS INC	426 S CLOVERDALE ST	1/2 - 1 W	AY208	156
SIGNAL MOTOR EQUIPMENT	555 S HOLDEN	1/2 - 1 WNW	211	157
PUGET SOUND TRK LINES SEA	7303 8TH AVE S	1/2 - 1 NNW	AZ214	159
GEAR WORKS SEATTLE INC	500 S PORTLAND ST	1/2 - 1 WNW	AX216	160
S CHICAGO ST DUMP	251 S CHICAGO ST	1/2 - 1 WNW	BA218	162
NON FERROUS METALS INCORPORATE	230 S. CHICAGO ST.	1/2 - 1 WNW	BA222	165
NELSON TRUCKING CO INC	7130 8TH AVE S	1/2 - 1 NNW	BC227	166
PACIFIC TERMINALS LIMITED	660 S OTHELLO	1/2 - 1 NW	BE231	169
DINOL US INC SEATTLE	650 S OTHELLO ST	1/2 - 1 NW	BE232	169
GLOBAL, INC	7619 - 5TH AVE S	1/2 - 1 NW	BF234	169
MACHINISTS INC PLANT 2	509 S AUSTIN ST	1/2 - 1 NW	BF246	174
REMEDCO INC	7201 E MARGINAL WY S	1/2 - 1 NNW	BI252	179
GLITSA AMERICAN INC	327 S KENYON ST	1/2 - 1 WNW	BJ259	184
NORTHWEST CONTAINER SVCS INC S	600 S GARDEN ST	1/2 - 1 NW	306	207
COLOUR SYSTEMS INTL LLC	1017 S MYRTLE ST	1/2 - 1 NNW	BT311	209
COASTAL ALASKA MARINE LINES	745 S ORCHARD ST	1/2 - 1 NNW	322	216
SEATTLE CITY SOUTH RECYCLING &	8100 2ND AVE S	1/2 - 1 WNW	BW323	216
ATC DISTRIBUTION GROUP	401 S WEBSTER	1/2 - 1 NW	BX327	220
UNITED IRON WORKS INC	7421 5TH AVE S	1/2 - 1 NW	BV329	223
GO DAN INDUSTRIES SEATTLE	7951 2ND AVE S	1/2 - 1 WNW	CA336	225
FORMULA CORP.	7901 2ND AVE. S.	1/2 - 1 WNW	CA339	226
TRIM SYSTEMS OPERATING CO	701 S ORCHARD ST	1/2 - 1 NW	CC342	228
ROYAL LINE CABINET CO SEATTLE	700 S ORCHARD ST	1/2 - 1 NW	CC343	229
CUNNINGHAM MFG CO INC	318 S WEBSTER ST	1/2 - 1 NW	345	230
TYEE INDUSTRIES	765 S MYRTLE ST	1/2 - 1 NNW	346	231
SEATTLE SLUDGE INTERIM PROJECT	7417 4TH AVE S	1/2 - 1 NW	353	240
GUINNS AUTOMOTIVE & ELECTRIC	245 S AUSTIN	1/2 - 1 WNW	CE356	242
NORTH STAR ICE EQUIPMENT INC	8151 OCCIDENTAL AVE S	1/2 - 1 W	CF360	243
WA DNR CORSON AVE SITE HAT BOO	6800 E MARGINAL WAY & C	1/2 - 1 NNW	367	247
COMMERCIAL WELDING & FABRICATI	711 S MYRTLE ST	1/2 - 1 NNW	CI370	248
INTERNATIONAL CONSTRUCTION EQU	8101 OCCIDENTAL AVE S	1/2 - 1 W	CJ371	249
TRANSFER STA BARREL	8100 OCCIDENTAL AVE S 0	1/2 - 1 W	CJ372	249
RSTS KENYON ST	130 S KENYON ST	1/2 - 1 WNW	CK374	251
BOYER ALASKA BARGE LINES INC	7318 4TH AVE S	1/2 - 1 NW	377	254
SEATTLE IRON METALS CORP MYRTL	601 S MYRTLE ST	1/2 - 1 NW	CL378	255
PROFESSIONAL SERVICE INDUSTRIE	7400 3RD AVE S	1/2 - 1 NW	384	256
LIQUID AIR CORP OF N AMERICA	7500 2ND AVE S	1/2 - 1 WNW	CM387	258
PACIFIC AMERICAN COMMERCIAL CO	7400 2ND AVE S	1/2 - 1 WNW	CM389	259
WE PAINTERS INC	110 S KENYON	1/2 - 1 WNW	390	259

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<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
WG CLARK CONSTRUCTION OCCIDENT	7958 OCCIDENTAL AVE S	1/2 - 1 WNW	CO395	267
USWCOM SEATTLE DUWAMISH CO	7000 E MARGINAL WAY S	1/2 - 1 NNW	CP400	272
INTERNATIONAL LUBRICANTS INC	7930 OCCIDENTAL S	1/2 - 1 WNW	CO401	273
SOUTH PARK TRUCK TRAILER REP	7265 2ND AVE S	1/2 - 1 NW	CQ402	273
NW ENVIROSERVICE 1ST AVE SITE	8105 1ST AVE S	1/2 - 1 W	CS407	276
KELLY RYAN INC SOUTH PARK	7235 2ND AVE S	1/2 - 1 NW	CQ408	277
PATENT CONSTRUCTION SYSTEMS	8111 1ST AVE S	1/2 - 1 W	CS410	277
BJ TRUCK WRECKING	7225 2ND AVE S	1/2 - 1 NW	CQ411	278
MAGNETIC & PENETRANT SERVICES	8135 1ST AVE S	1/2 - 1 W	CS412	278
STANDARD STEEL FABRICATING CO	8155 1ST AVE S	1/2 - 1 W	CT415	282
TW EXPRESS	7901 1ST AVE	1/2 - 1 W	CU416	282
RECYCLE AMERICA	7901 1ST AVE S CLEAN UP	1/2 - 1 W	CU417	283
WASTE MANAGEMENT OF SEATTLE 1S	7901 1ST AVE S	1/2 - 1 W	CU420	284
ALL ALASKAN SEAFOODS INC	501 S MYRTLE ST	1/2 - 1 NW	CV424	286
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288
1ST KENYON DRUM	1ST AVE S & SW KENYON S	1/2 - 1 WNW	430	291

HMIRS: The Hazardous Materials Incident Report System contains hazardous material spill incidents reported to the Department of Transportation. The source of this database is the U.S. EPA.

A review of the HMIRS list, as provided by EDR, and dated 12/31/2001 has revealed that there are 9 HMIRS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
Not reported	8075 PERIMETER ROAD SOU	1/2 - 1 NE	BL264	186
Not reported	8075 PERIMETER ROAD SOU	1/2 - 1 NE	BL265	186
Not reported	8201 PERIMETER RD S	1/2 - 1 ENE	278	191
Not reported	7607 PERIMETER ROAD	1/2 - 1 NE	BQ288	201
Not reported	7607 PERIMETER RD S	1/2 - 1 NE	BQ290	202
Not reported	7607 PERIMETER ROAD	1/2 - 1 NE	BQ291	202
Not reported	7607 PERIMETER ROAD SOU	1/2 - 1 NE	BQ293	203
Not reported	7575 PERIMETER ROAD	1/2 - 1 NE	BQ300	205

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
Not reported	7901 2ND AV. S	1/2 - 1 WNW	CA338	226

MLTS: The Material Licensing Tracking System is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and are subject to NRC licensing requirements.

A review of the MLTS list, as provided by EDR, and dated 04/12/2002 has revealed that there is 1 MLTS site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
ETT:X-RAY, INC.	7500 PERIMETER RD., S.	1/2 - 1 NE	305	207

EXECUTIVE SUMMARY

PADS: The PCB Activity Database identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the United States Environmental Protection Agency of such activities. The source of this database is the U.S. EPA.

A review of the PADS list, as provided by EDR, and dated 03/01/2002 has revealed that there are 5 PADS sites within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
FOSS ENVIRONMENTAL SERVICES CO	7440 W MARGINAL WAY S	1/2 - 1 N	S90	91
EMERALD SERVICES	7343 E MARGINAL WAY S	1/2 - 1 NNW	AD120	109
LONG PAINTING CO 5TH AVE	8230 5TH AVE S	1/2 - 1 W	AO165	130
SAMSON TUG & BARGE CO INC	7400 8TH AVE S	1/2 - 1 NNW	AS187	143
BOYER ALASKA BARGE LINES INC	7318 4TH AVE S	1/2 - 1 NW	377	254

RAATS: The RCRA Administration Action Tracking System contains records based on enforcement actions issued under RCRA and pertaining to major violators. It includes administrative and civil actions brought by the United States Environmental Protection Agency. The source of this database is the U.S. EPA.

A review of the RAATS list, as provided by EDR, and dated 04/17/1995 has revealed that there is 1 RAATS site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SEATTLE CITY LIGHT MUNICIPAL B	7777 PERIMETER RD	1/2 - 1 NE	BM269	187

TRIS: The Toxic Chemical Release Inventory System identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III, Section 313. The source of this database is the U.S. EPA.

A review of the TRIS list, as provided by EDR, and dated 12/31/1999 has revealed that there are 6 TRIS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K49	45
PUGET SOUND COATINGS MACHINIST	9220 8TH AV S	1/2 - 1 SW	AN172	135
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING NORTH BOEING FIELD	7500 E MARGINAL WAY	1/4 - 1/2 N	Q84	86
NON-FERROUS METALS INC.	230 S. CHICAGO ST.	1/2 - 1 WNW	BA221	165
FORMULA CORP.	7901 2ND AVE. S.	1/2 - 1 WNW	CA339	226
TRIM SYSTEMS OPERATING CO	701 S ORCHARD ST	1/2 - 1 NW	CC342	228

TSCA: The Toxic Substances Control Act identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site. The United States Environmental Protection Agency has no current plan to update and/or re-issue this database.

A review of the TSCA list, as provided by EDR, and dated 12/31/1998 has revealed that there are 2 TSCA sites within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
AIRCO WELDING PRODUCTS	7700 14TH AV S	1/4 - 1/2 N	O71	72

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<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LIQUID AIR CORP OF N AMERICA	7500 2ND AVE S	1/2 - 1 WNW	CM387	258

FTTS: FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act) over the previous five years. To maintain currency, EDR contacts the Agency on a quarterly basis.

A review of the FTTS list, as provided by EDR, and dated 04/25/2002 has revealed that there are 10 FTTS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING AEROSPACE CO PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K45	44
BOEING	7755 E MARGINAL WAY S	1/4 - 1/2 NNE	K54	55
PUGET SOUND COATINGS INC	9220 8TH AVE S	1/2 - 1 SW	AN173	138
DELTA MARINE INDUSTRIES	1608 S 96TH ST	1/2 - 1 SSE	BB220	164
OTTER CORP (IMPORTER)	7777 PERIMETER RD SOUTH	1/2 - 1 NE	BM271	187
MAGNETIC PENETRANT SVCS CO	309 S CLOVERDALE ST UNI	1/2 - 1 WSW	BY333	224
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
E M MATSON JR CO INC	7808 8TH AVE S	1/4 - 1/2 NW	R88	90
CUSTOM ELECTRIC	7136 8TH AVE S	1/2 - 1 NNW	BC225	166
REMEDCO INC	7201 E MARGINAL WAY SOU	1/2 - 1 NNW	BI253	179
FORMULA CORP.	7901 2ND AVE. S.	1/2 - 1 WNW	CA339	226

STATE OR LOCAL ASTM SUPPLEMENTAL

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the CSCSL NFA list, as provided by EDR, and dated 11/26/2001 has revealed that there are 13 CSCSL NFA sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
KASPAC CHIYODA PROPERTY	1237 S DIRECTOR ST	1/4 - 1/2 SSW	N66	63
PRECISION ENGINEERING	1231 S DIRECTOR	1/4 - 1/2 SSW	N68	64
KRS MARINE	1621 S 92ND PLACE	1/2 - 1 S	V99	98
ALL CITY AUTO WRECKING & SALES	9438 DES MOINES MEMORIA	1/2 - 1 SSW	156	125
PUGET SOUND COATINGS INC	9400 8TH AVE S	1/2 - 1 SW	AN170	134
PUGET SOUND COATINGS MACHINIST	9220 8TH AV S	1/2 - 1 SW	AN172	135
DESIMONE TRUST / HOMEPLACE	9365 7TH AVE S	1/2 - 1 SW	BD228	167
FLIGHTCRAFT INC SEATTLE	8285 PERIMETER RD S	1/2 - 1 ENE	BP285	195
MARKEY PROPERTY PARCEL 4	PARCEL 4 S 96TH ST 10T	1/2 - 1 SSW	BN304	206

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<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOC GASES 14TH AVE	7700 14TH AVE S	1/4 - 1/2N	O70	68
EVERGREEN MARINE LEASING	7343 E MARGINAL WAY	1/2 - 1 NNW	AD119	108
KING AUTO TRUCK WRECKING	543 S MONROE	1/2 - 1 WNW	AM160	127
FERGUSON CONSTRUCTION	7433 5TH AVE S	1/2 - 1 NW	BV320	214

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the WA ICR list, as provided by EDR, has revealed that there are 70 WA ICR sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
ANDREWS PROPERTY	8520 14TH AVE. S.	0 - 1/8 SSW	A4	7
SPENCER INDUSTRIES, INC.	8410 DALLAS AVE. S.	1/8 - 1/4W	B7	9
CROSBY AUTO REPAIR SHOP	8621 14TH AVE. S.	1/8 - 1/4S	C10	10
CHEVRON 9 8484	8700 14TH AVE. S.	1/8 - 1/4S	F20	20
AUTOMAGIC SITE FORMER)	8721 14TH AVE. SE	1/8 - 1/4S	F23	25
BOEING COMMERCIAL AIRPLANE GRO	1420 S. TRENTON ST.	1/8 - 1/4S	G24	25
ARCO	8819 14TH AVE. S.	1/4 - 1/2S	G28	28
WARNERS AUTO REPAIR	9001 14TH AVE. S.	1/4 - 1/2S	J42	40
BOEING PLANT 2	7755 E MARGINAL WAY S	1/4 - 1/2NNE	K49	45
BOEING CO. PLANT 2 - BLDG. 2-6	7755 E. MARGINAL WAY S.	1/4 - 1/2NNE	K53	55
CHIYODA INTERNATIONAL/KASPAC	1237 S. DIRECTOR ST.	1/4 - 1/2SSW	N67	64
PRECISION ENGINEERING	1231 S DIRECTOR	1/4 - 1/2SSW	N68	64
KRS MARINE	1621 S. 92ND PL.	1/2 - 1 S	V97	98
GARY MERLINO CONSTRUCTION CO	9125 10TH AVE S	1/2 - 1 SSW	X107	101
PUGET SOUND COATINGS MACHINIST	9220 8TH AV S	1/2 - 1 SW	AN172	135
DESIMONE TRUST PROPERTY	9365 7TH AVE. S.	1/2 - 1 SW	BD229	167
DESIMONE TRUST PROPERTY TWO	9365 7TH AVE. S.	1/2 - 1 SW	BD230	168
FRUEHAUF TRAILER SERVICES, INC	9426 8TH AVE S	1/2 - 1 SSW	248	175
GALVIN FLYING SERVICES INC	7777 PERIMETER ROAD S.	1/2 - 1 NE	BM267	186
SUNNYDALE CONSTRUCTION	1110 S. 96TH	1/2 - 1 SSW	BN277	191
HANGAR HOLDINGS, INC.	7675 PERIMETER ROAD S.	1/2 - 1 NE	BO280	192
HANGAR HOLDINGS, INC.	7675 PERIMETER ROAD S.	1/2 - 1 NE	BO281	192
HANGAR HOLDINGS, INC.	7675 PERIMETER ROAD S.	1/2 - 1 NE	BO284	195
FLIGHTCRAFT INC SEATTLE	8285 PERIMETER RD S	1/2 - 1 ENE	BP285	195
FEDERAL EXPRESS PERIMETER RD S	7607 PERIMETER RD S	1/2 - 1 NE	BQ289	201
BARCO	1050 S. 96TH ST.	1/2 - 1 SSW	BR303	206
SCD PROPERTY	1000 S. 96TH	1/2 - 1 SSW	308	208
SEATTLE AIR CORP	8535 PERIMETER RD S	1/2 - 1 ENE	BS310	209
BOEING ELECTRONIC MANUFACTURIN	7355 PERIMETER ROAD S.	1/2 - 1 NE	BU318	212
AMERICAN AVIONICS	7031 PERIMETER ROAD S.	1/2 - 1 NNE	CB341	228
GALVIN S FLYING SERVICE	7001 PERIMETER ROAD	1/2 - 1 NNE	CB349	233
SELLAND AUTO TRANSPORT	615 S. 96TH ST.	1/2 - 1 SW	CN397	270

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
LONG PAINTING CO 10TH AVE	8025 10TH AVE S	1/4 - 1/2WNW	H31	30
AIRCO WELDING PRODUCTS	7700 14TH AV S	1/4 - 1/2N	O71	72
BOEING NORTH BOEING FIELD	7500 E MARGINAL WAY	1/4 - 1/2N	Q84	86
BOEING/NORTH BOEING FIELD BUIL	7500 E. MARGINAL WAY S.	1/4 - 1/2N	Q85	89
INTERSTATE COATINGS	754 S CHICAGO	1/2 - 1 WNW	U94	93
EVERGREEN MARINE LEASING	7343 E MARGINAL WAY	1/2 - 1 NNW	AD119	108
HURLEN CONSTRUCTION	700 S RIVERSIDE DR	1/2 - 1 NW	AH138	116

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<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
KING COUNTY AIRPORT OLD GAS S	7300 E. MARGINAL WAY S.	1/2 - 1 NNW	AJ144	120
MANITOWAK WESTERN	8250 5TH AVE S	1/2 - 1 W	AO163	129
RAZORE ENTERPRISES	500 SOUTH SULLIVAN	1/2 - 1 W	AP166	131
MARINE LUMBER SERVICE - SHOP	558 S KENYON ST	1/2 - 1 WNW	169	133
CROTHAMEL PROPERTY	605 S. RIVERSIDE DR.	1/2 - 1 NW	AQ185	142
ARCO 5218	7200 E. MARGINAL WAY S.	1/2 - 1 NNW	AU196	147
MARINE LUMBER SERVICE INC.	525 S CHICAGO ST /PO BO	1/2 - 1 WNW	AR198	152
PUGET SOUND TRUCK SEATTLE	7303 8TH AVE. S.	1/2 - 1 NNW	AZ215	160
BOEING - NORTH FIELD	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG235	170
NORTH BOEING FIELD, BLAST FENC	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG236	170
BOEING - NORTH BOEING FIELD, P	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG237	170
BOEING - NORTH FIELD BUILDING	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG238	171
BOEING NORTH FIELD-BLDGS 3-800	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG239	171
BOEING - NORTH BOEING FIELD BL	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG240	171
BOEING NORTH FIELD	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG241	172
BOEING - NORTH FIELD BUILDING	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG242	172
BOEING - NORTH FIELD BUILDING	ELLIS AVE. S. E. MARG	1/2 - 1 NNW	BG244	174
STERNOFF METALS FORMER) TWO	7201 E. MARGINAL WAY S.	1/2 - 1 NNW	BI251	178
SEATTLE CITY LIGHT	1012 S. MYRTLE ST.	1/2 - 1 NNW	BT313	210
CITY OF SEATTLE - FIRE STATION	1000 S. MYRTLE ST.	1/2 - 1 NNW	BT315	211
FERGUSON CONSTRUCTION	7433 5TH AVE S	1/2 - 1 NW	BV320	214
CITY OF SEATTLE SOLID WASTE DI	8100 2ND AVE S	1/2 - 1 WNW	BW324	217
ATC DISTRIBUTION GROUP	401 S WEBSTER	1/2 - 1 NW	BX327	220
ROYAL HYWAY TOURS	255 SOUTH HOLDEN ST.	1/2 - 1 WNW	CG361	244
TACOMA SEATTLE TRAILER	150 S. KENYON ST.	1/2 - 1 WNW	CH363	245
FIRE KING OF SEATTLE	240 S. HOLDEN ST.	1/2 - 1 WNW	CG365	246
RYDER STUDENT TRANSPORTATION S	130 S KENYON ST	1/2 - 1 WNW	CK375	251
NW ENVIROSERVICE TRANSFER FACI	8105 1ST AVE. S.	1/2 - 1 W	CS405	275
RECYCLE AMERICA	7901 1ST AVE. S.	1/2 - 1 W	CU419	284
DNR	6715,6737 CORSON AVE. S	1/2 - 1 NNW	422	285
LIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288

SPILLS: Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

A review of the SPILLS list, as provided by EDR, and dated 04/17/2002 has revealed that there are 38 SPILLS sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
Not reported	8520 14TH AVE SO - OLD	0 - 1/8 SSW	A2	5
SCOTT ANDREWS	8520 14TH AVE S	0 - 1/8 SSW	A3	5
Not reported	8524 14TH AVE S	0 - 1/8 SSW	A5	7
Not reported	1400 SOUTH CLOVERDALE,	1/8 - 1/4 SSW	C8	9
Not reported	8621 14TH AVE SO	1/8 - 1/4 S	C12	10
Not reported	8507 12TH AVE SO, BEHIN	1/8 - 1/4 WSW	15	14
Not reported	1414 S CONCORD ST	1/4 - 1/2 S	37	37
Not reported	7TH AVE S / S CLOVERDAL	1/2 - 1 WSW	93	93
Not reported	1621 S 92ND PL, SEA KIN	1/2 - 1 S	V98	98
Not reported	1641 S 92ND PL 98108 K	1/2 - 1 S	103	99
Not reported	7TH AVE S / S DIRECTOR	1/2 - 1 SW	181	141
BOEING MILITARY AIRCRAFT DC)	9725 E MARGINAL WAY S	1/2 - 1 S	212	158
Not reported	9326 7TH AVE S BETWEEN	1/2 - 1 SW	223	165
AVIATION METHODS, INC.	7675 PERIMETER RD S	1/2 - 1 NE	BO282	193

EXECUTIVE SUMMARY

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
Not reported	7575 PERIMETER RD S	1/2 - 1 NE	BQ297	205
Not reported	7575 PERIMETER RD. S, B	1/2 - 1 NE	BQ298	205
Not reported	7575 PERIMETER ROAD SO	1/2 - 1 NE	BQ301	205
Not reported	1050 SOUTH 96TH ST SEAT	1/2 - 1 SSW	BR302	206
Not reported	7001 PERIMETER RD S	1/2 - 1 NNE	CB351	233
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
Not reported	8025 10TH AVE SO	1/4 - 1/2 WNW	H32	35
BOC GASES 14TH AVE	7700 14TH AVE S	1/4 - 1/2 N	O70	68
Not reported	7700 14TH AVENUE SOUTH,	1/4 - 1/2 N	O73	73
Not reported	7912 7TH AVE SO AAA TR	1/2 - 1 WNW	AB113	106
Not reported	7800 7TH AVE SO	1/2 - 1 WNW	AG129	112
Not reported	7TH S / CHICAGO S	1/2 - 1 WNW	AG131	112
Not reported	636 S RIVERSIDE DR	1/2 - 1 NW	AQ178	140
Not reported	605 S RIVERSIDE DR, CRO	1/2 - 1 NW	AQ184	142
Not reported	7400 8TH AVE S	1/2 - 1 NNW	AS192	144
Not reported	7200 EAST MARGINAL WAY	1/2 - 1 NNW	AU194	147
Not reported	7201 EAST MARGINAL WAY	1/2 - 1 NNW	AU195	147
Not reported	509 S AUSTIN ST	1/2 - 1 NW	BF245	174
CITY OF SEATTLE SOLID WASTE DI	8100 2ND AVE S	1/2 - 1 WNW	BW324	217
Not reported	211 S AUSTIN, WEST SEAT	1/2 - 1 WNW	CE369	248
Not reported	601 S. MYRTLE ST	1/2 - 1 NW	CL381	255
Not reported	601 S MYRTLE ST	1/2 - 1 NW	CL383	256
Not reported	8155 1ST AVE S	1/2 - 1 W	CT414	282
Not reported	500 S MYRTLE ST	1/2 - 1 NW	CV423	285
LAIDLAW	7739 1ST AVE S	1/2 - 1 WNW	CW429	288

Wa Air Emissions: State of Washington, Department of Ecology, Washington Emissions Data System.

A review of the EMI list, as provided by EDR, has revealed that there are 9 EMI sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING COMMERCIAL AIRPLANE PL	7755 E MARGINAL WY S PL	1/4 - 1/2 NNE	K43	40
BOEING COMMERCIAL AIRPLANE GRP	7755 E MARGINAL WY S PL	1/4 - 1/2 NNE	K47	44
BOEING COMMERCIAL AIRPLANE NB	7755 E MARGINAL WY S 2-	1/4 - 1/2 NNE	K51	54
PROFESSIONAL COATING INC	1705 S 93RD ST F-22	1/2 - 1 SSE	AI141	117
PROFESSIONAL COATING INC	1705 S 93RD F-22	1/2 - 1 SSE	AI142	118
PUGET SOUND COATINGS MACHINIS	9220 8TH AVE S	1/2 - 1 SW	AN171	135
PUGET SOUND COATINGS MACHINIST	9220 8TH AVE S	1/2 - 1 SW	AN174	138
BOEING MILITARY AIRCRAFT DC)	9725 E MARGINAL WAY S	1/2 - 1 S	212	158
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BOEING COMMERCIAL AIRPLANE NB	7370 E MARGINAL WY S 22	1/2 - 1 N	Z110	105

EXECUTIVE SUMMARY

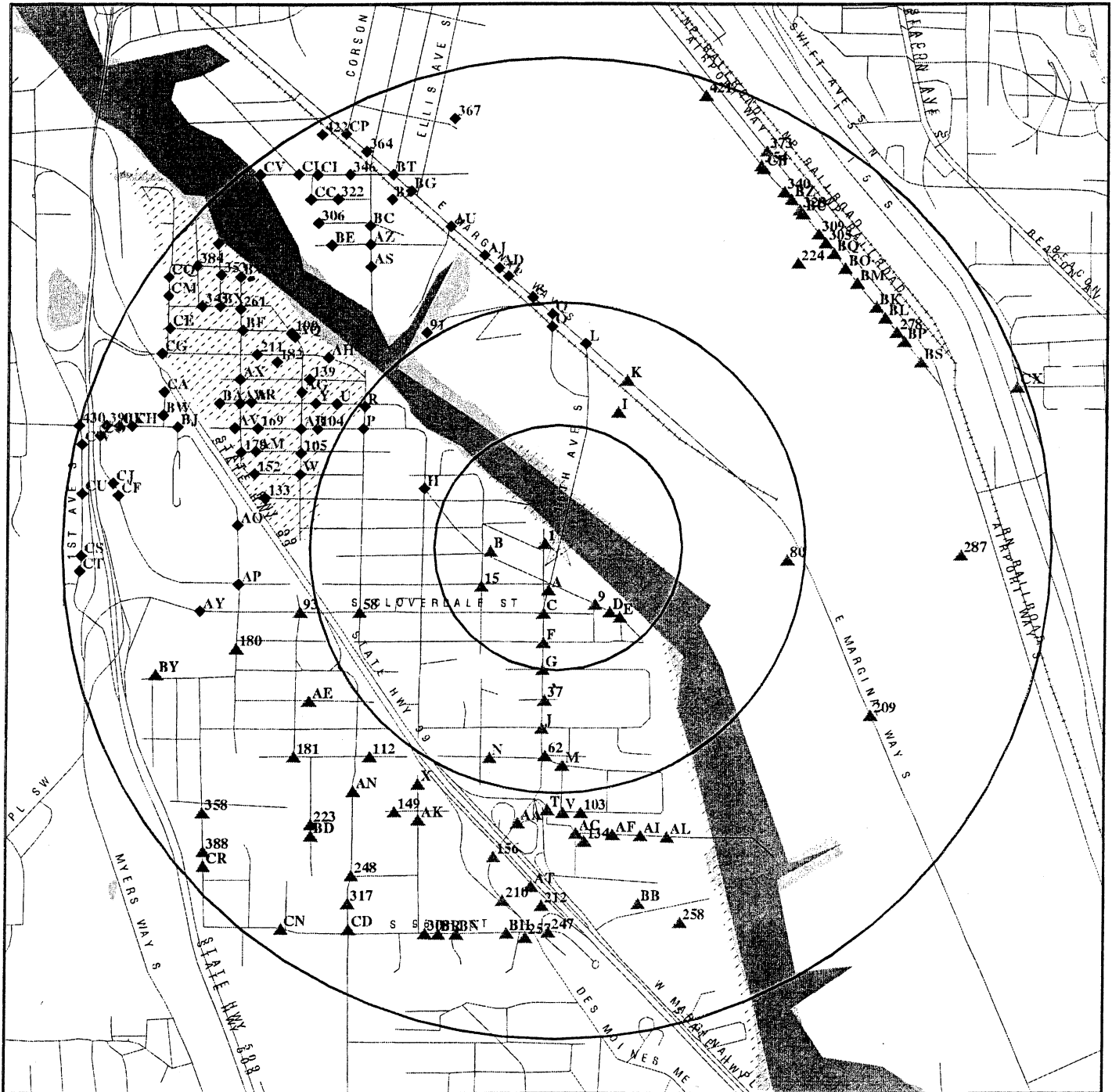
Due to poor or inadequate address information, the following sites were not mapped:

<u>Site Name</u>	<u>Database(s)</u>
PRESERVATIVE PAINT CO	FTTS
EUROIMPORT CO INC	FINDS, FTTS
SEATTLE CITY LIGHT SANISLO SCHOOL	FINDS, FTTS
SEATTLE SD 1228	FINDS, FTTS
BOEING COMPANY N FIELD SEATTLE CY	CERC-NFRAP
DIMENSIONAL ENGINEERING	CERC-NFRAP
SEATTLE, CY OF, 1ST AV BRG LDFL	CERC-NFRAP
SOUTH TS / SOUTH HHW FACILITY - MR	SWF/LF
MUSEUM OF FLIGHT PROPERTY	UST, LUST, SPILLS
FORREST TAYLOR	UST
GLOBAL INTERMODAL SYSTEMS	RCRIS-SQG
AHRENIUS MANUFACTURING INC	RCRIS-SQG
CLARKLIFT OF WASHINGTON ALASKA INC	RCRIS-SQG, FINDS
SELLAND AUTO TRANSPORT	RCRIS-SQG
SEATTLE CITY ENG DEPT AIRPORT WAY	RCRIS-SQG, FINDS
MACHINISTS INC PLANT 2	RCRIS-SQG
FRUEHAUF TRAILER INC SEATTLE	RCRIS-SQG, FINDS
TIERNEY ELECTRICAL MFG CO	RCRIS-SQG
ALPINE EQUIPMENT RENTALS & SUPPLY	RCRIS-SQG
PHILS FINISHING TOUCH	RCRIS-SQG, FINDS
WESTEC INDUSTRIES INC	RCRIS-SQG
WARNERS FOREIGN AUTO REPAIR	RCRIS-SQG, FINDS
PSF MECHANICAL INC	RCRIS-SQG
PSF INDUSTRIES INC FIELD YARD	RCRIS-SQG
BIG JOHNS TRUCK REPAIR INC	RCRIS-SQG
NORTHLAND SERVICES INC TRANSFER FA	RCRIS-SQG
DESIGN DIRECT SOUND INC	RCRIS-SQG
FEDERAL EXPRESS CORP BFI	RCRIS-SQG
CAMERAS WEST 1032	RCRIS-SQG
SEATTLE CITY DEXTER HORTON BUILDIN	RCRIS-SQG
WASHINGTON MUTUAL BANK	RCRIS-SQG
ROCKWELL AUTOMATION DODGE CST	RCRIS-SQG
CLOVERDALE BUSINESS PARK	RCRIS-SQG, FINDS
CHRISTIAN BROTHERS FLOOR SVC INC	RCRIS-SQG
1ST AVE BRG BBC2	RCRIS-SQG, FINDS
SOUTH PARK MARINA	RCRIS-SQG, FINDS
NORTHWEST ANTIFREEZE SVC INC	RCRIS-SQG
GLITSA AMERICAN INC	RCRIS-SQG
CLYDE WEST INC	RCRIS-SQG, FINDS
ARCO 5218 PSI 0685	RCRIS-SQG, FINDS
ETT X RAY INCORPORATED	RCRIS-SQG, FINDS
NORDSTROM INC	RCRIS-SQG, FINDS
GALVIN FLYING SERVICE INC	RCRIS-SQG
UPS BOEING FIELD	RCRIS-SQG
RS HUGHES CO INC	RCRIS-SQG, FINDS
COPPER RIVER RR YARD	PADS, WA ICR
60 MILES SOUTH OF COOS BAY 1.5 MIL	ERNS
WEST OF BALLARD BRIDGE SHIP CANAL	ERNS
NO. 1 SOUTH IDAHO STREET	ERNS
SOUTH 115TH STREET AND E. MARGINAL	ERNS
16TH SOUTH	ERNS
16TH AVE S. BRIDGE ON THE DUWAMISH	ERNS
46TH AVE SOUTH	ERNS
ACROSS STREET FROM 7600 5TH AVENUE	ERNS
ALLEY BTWN. 52ND & SEWARD PARK	ERNS
NORTH AND SOUTH SIDE OF MCNIEL ISL	ERNS
8TH AVE SOUTH & EAST MARGINAL WAY,	ERNS
2300 26TH AVE, SOUTH	ERNS
AVE. PARK	ERNS

EXECUTIVE SUMMARY

BALLARD BRIDGE	ERNS
BALLARD BRIDGE	ERNS
BALLARD BRIDGE	ERNS
BETWEEN GASWORKS PARK & FREEMONT B	ERNS
5900 BLOCK SEAVIEW AVE 200 YDS SOU	ERNS
520 BRIDGE, EAST HIGH RISE, ALONG	ERNS
BUILDING SOUTH OF WESTLAKE TOWER O	ERNS
COLMAN PARK ~3400 HOLGATE (GO EAST	ERNS
402 SOUTH DAWSON ST PHONE NO.(206)	ERNS
SOUTH END OF SEA VIEW AVENUE	ERNS
ON FAIRVIEW BETWEEN EASTLAKE AND W	ERNS
1515 FAIRVIEW EAST SOUTH PIER	ERNS
8105 FIRST AVE SOUTH	ERNS
FISHERMANS TERMINAL/ BY BRIDGE	ERNS
FREEMONT BRIDGE FREEMONT BLVD	ERNS
HARBOR ISLAND CORPORATE PARK / 100	ERNS
INST 5 SOUTHBOUND WHERE DUWAMISH R	ERNS
MILITARY ROAD SOUTH UNDER	ERNS
NEAR AURORA BRIDGE	ERNS
NOREAST SIDE OF BALLARD BRIDGE	ERNS
NORTHLAKE SHIPYARD EAST SIDE 190 B	ERNS
OCEAN BEAUTY DOCK JUST E OF BALLAR	ERNS
SOUTH OF 19548 15TH AV NE IN SEATT	ERNS
PIER 5 SOUTH	ERNS
PIONEER BUILDERS 98TH AT PACIFIC H	ERNS
17 PLACE AVE SOUTH NEAR HWY 99	ERNS
PLANT 2 16TH AVE. BRIDGE, DUWAMISH	ERNS
SALMON BAY BALLARD BRIDGE	ERNS
SOUTH SIDE OF THE CANAL ENTRANCE T	ERNS
.50MI SOUTH OF PT WELLS/ .25MI OFF	ERNS
UNDER BALLARD BRIDGE	ERNS
EVERGREEN MARINE LEASING THREE RE	WA ICR
SR 99 FIRST AVE. BRIDGE SPILL/WS	WA ICR
UNION PACIFIC RAILROAD	WA ICR
NORTHWEST ENVIRO SERVICE	WA ICR
MOBIL CANAL BULK PLANT	WA ICR
RASMUSSEN EQUIPMENT	WA ICR
SEATTLE CITY LIGHT/N. BOEING FIELD	WA ICR
BAXTER RUTHERFORD	WA ICR
BOEING - NORTH FIELD - FIRE TRAINI	WA ICR
BOEING - NORTH BOEING FIELD	WA ICR
MUSEUM OF FLIGHT PROPERTY	WA ICR
TRITELL LLC	WA ICR
SEATAC AIRPORT - PAN AM HANGER	WA ICR
ATLAS DEMOLITION	CSCSL NFA
BOEING A&M DEVELOPMENT CENTER	HAZNET

OVERVIEW MAP - 806613.2s - Parsons Brinckerhoff



☆ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Coal Gasification Sites

▨ National Priority List Sites

▨ Landfill Sites

— Power transmission lines

— Oil & Gas pipelines

▨ 100-year flood zone

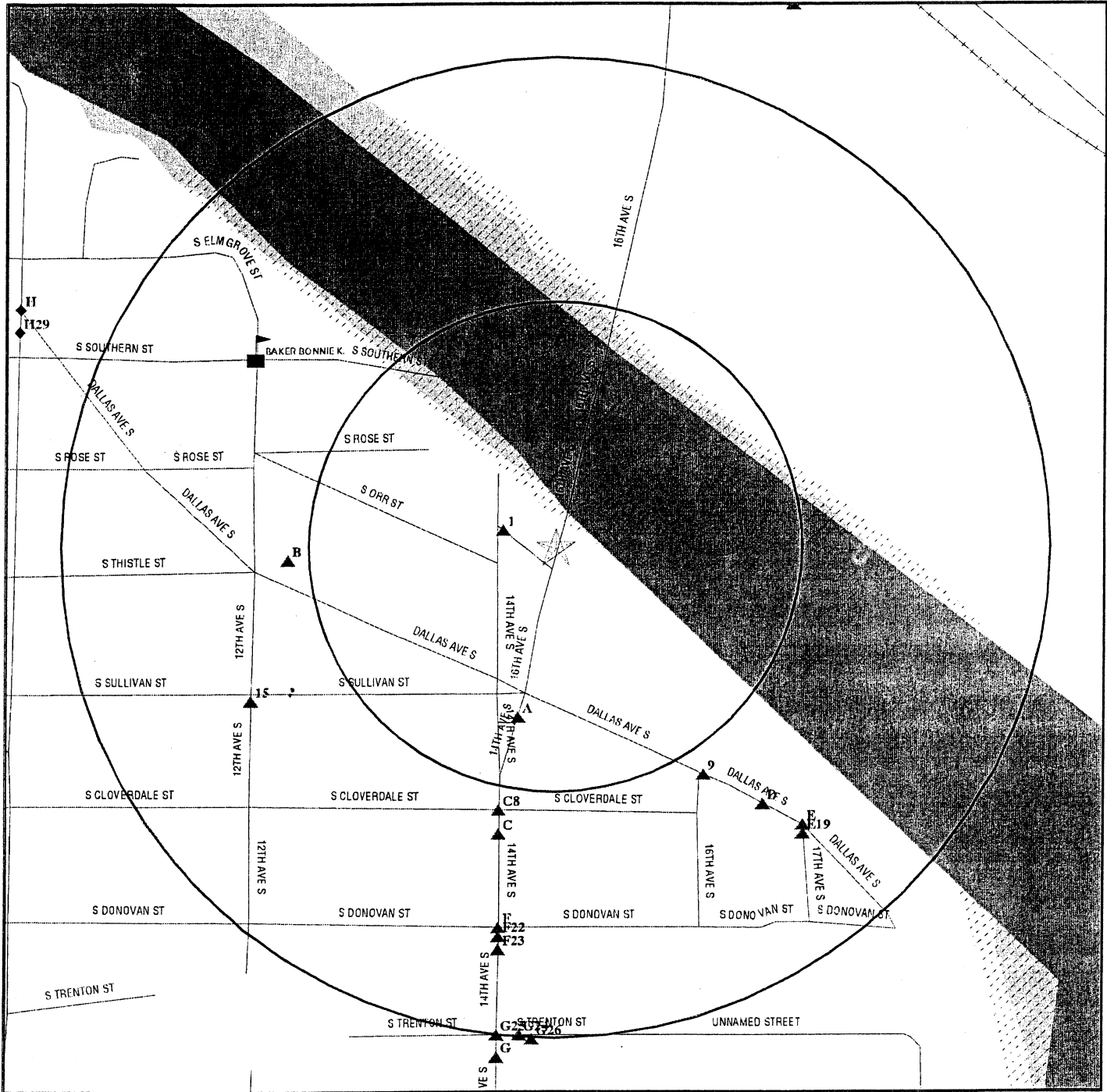
▨ 500-year flood zone

▨ Wetlands

TARGET PROPERTY: South Park Bridge
ADDRESS: 16th Ave South
CITY/STATE/ZIP: Seattle WA 98101
LAT/LONG: 47.5284 / 122.3144

CUSTOMER: Parsons Brinckerhoff
CONTACT: Patrick Romero
INQUIRY #: 806613.2s
DATE: June 28, 2002 10:25 am

DETAIL MAP - 806613.2s - Parsons Brinckerhoff



- ☆ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- Sensitive Receptors
- ▨ National Priority List Sites
- ▨ Landfill Sites

- Power transmission lines
- Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- ▨ Wetlands

TARGET PROPERTY: South Park Bridge
 ADDRESS: 16th Ave South
 CITY/STATE/ZIP: Seattle WA 98101
 LAT/LONG: 47.5284 / 122.3144

CUSTOMER: Parsons Brinckerhoff
 CONTACT: Patrick Romero
 INQUIRY #: 806613.2s
 DATE: June 28, 2002 10:32 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<u>FEDERAL ASTM STANDARD</u>								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		1.000	0	0	0	0	NR	0
CERC-NFRAP		1.000	0	1	2	2	NR	5
CORRACTS		1.000	0	0	2	1	NR	3
RCRIS-TSD		1.000	0	0	1	1	NR	2
RCRIS Lg. Quan. Gen.		1.000	0	0	5	4	NR	9
RCRIS Sm. Quan. Gen.		1.000	0	6	14	128	NR	148
ERNS		1.000	0	0	10	8	NR	18
<u>STATE ASTM STANDARD</u>								
CSCSL		1.000	0	2	3	21	NR	26
HSL		1.000	0	0	0	1	NR	1
State Landfill		1.000	0	0	0	0	NR	0
LUST		1.000	1	3	5	30	NR	39
UST		1.000	1	4	16	69	NR	90
<u>FEDERAL ASTM SUPPLEMENTAL</u>								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		1.000	1	6	20	155	NR	182
HMIRS		1.000	0	0	0	9	NR	9
MLTS		1.000	0	0	0	1	NR	1
MINES		1.000	0	0	0	0	NR	0
NPL Liens		1.000	0	0	0	0	NR	0
PADS		1.000	0	0	0	5	NR	5
RAATS		1.000	0	0	0	1	NR	1
TRIS		1.000	0	0	2	4	NR	6
TSCA		1.000	0	0	1	1	NR	2
FTTS		1.000	0	0	3	7	NR	10
<u>STATE OR LOCAL ASTM SUPPLEMENTAL</u>								
CSCSL NFA		1.000	0	0	3	10	NR	13
WA ICR		1.000	1	5	10	54	NR	70
SPILLS		1.000	3	3	4	28	NR	38
WA Emissions		1.000	0	0	3	6	NR	9
<u>EDR PROPRIETARY HISTORICAL DATABASES</u>								
Coal Gas		1.000	0	0	0	0	NR	0
AQUIFLOW - see EDR Physical Setting Source Addendum								

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

1
WNW
< 1/8
146 ft.
Higher

RICKS MASTER MARINE INC
1411 S THISTLE ST
SEATTLE, WA 98108

FINDS 1004612309
110005300995

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)

A2
SSW
< 1/8
469 ft.
Higher

8520 14TH AVE SO - OLD GAS STATION
SEATTLE, WA

SPILLS S105395434
N/A

Site 1 of 4 in cluster A

WA SPILL:

Facility ID: 515365
Date Received: 01/02/2001
Business Name: PRIVATE OWNER
Material Desc : PETROLEUM - GASOLINE
Medium: SOIL
Material Qty: Not reported
Material Units: Not reported

A3
SSW
< 1/8
469 ft.
Higher

SCOTT ANDREWS
8520 14TH AVE S
SEATTLE, WA 98104

UST U003765745
LUST N/A
SPILLS

Site 2 of 4 in cluster A

LUST:

Facility ID: 565971 Ecology Region: North Western
Release ID: 586477 Release Date: 1/2/2001 00:00:00
Release Status: Cleanup Started Status Date: 12/20/2000 00:00:00
Alternate Name: ANDREWS PROPERTY
Affected Media: Soil

Facility ID: 565971 Ecology Region: North Western
Release ID: 586477 Release Date: 1/2/2001 00:00:00
Release Status: Reported Cleaned Up Status Date: 2/14/2001 00:00:00
Alternate Name: ANDREWS PROPERTY
Affected Media: Soil

WA SPILL:

Facility ID: 522281
Date Received: 02/14/2001
Business Name: Not reported
Material Desc : PETROLEUM - GASOLINE
Medium: SOIL
Material Qty: 128
Material Units: TON

Map ID
Direction
Distance
Distance (ft.)
Elevation

Site

MAP FINDINGS

Database(s)

EDR ID Number
EPA ID Number

SCOTT ANDREWS (Continued)

U003765745

UST:

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: OTHER PETROLEUM SUBSTANCE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: UNKNOWN
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: OTHER PETROLEUM SUBSTANCE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: OTHER PETROLEUM SUBSTANCE
Substance: NW
Compartment #: Not reported
Ecology Region: 2

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: OTHER PETROLEUM SUBSTANCE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 565971
Install Date: Not reported
Capacity: Not reported
Status: Not reported
Tank Name: OTHER PETROLEUM SUBSTANCE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

A4
SSW
< 1/8
469 ft.
Higher
ANDREWS PROPERTY
8520 14TH AVE. S.
SEATTLE, WA 98104
Site 3 of 4 in cluster A

WA ICR **S105124730**
N/A

WA ICR:

Date Ecology Received Report: 02/14/2001
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 98-42
County Code: 17
Contact: Not reported
Report Title: UST Decommissioning and Site Assessment

A5
SSW
< 1/8
482 ft.
Higher
8524 14TH AVE S
SEATTLE, WA
Site 4 of 4 in cluster A

SPILLS **S105390838**
N/A

WA SPILL:

Facility ID: 507281
Date Received: 10/25/1999
Business Name: UNKNOWN
Material Desc : OTHER HAZARDOUS
Medium: OTHER
Material Qty: 1008
Material Units: GALLON

B6
West
1/8-1/4
715 ft.
Higher
SPENCER INDUSTRIES INC
8410 DALLAS AVE S
SEATTLE, WA 98108
Site 1 of 2 in cluster B

RCRIS-SQG **1000308172**
CSCSL **WAD009482456**

RCRIS:

Owner: SPENCER INDUSTRIES INC
EPA ID: WAD009482456
Contact: JAMES MCGOWAN
(206) 763-1000

Classification: N, Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported
Violation Status: No violations found

SHWS:

Facility ID: 13132191
Responsible Unit: NW
Latitude: 47 31 42
Longitude: 122 19 2
Ecology Site Status relative to the MTCA cleanup process:
Independent Remedial Action
Independent Site Status - those sites undergoing an independent cleanup:
Independent Site Assessment of Interim Remedial Action Report received

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

SPENCER INDUSTRIES INC (Continued)

1000308172

WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):

Not reported

Affected Media: Soil

Media Status: B (Below) - The presence of hazardous substances below MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum products). The B code may only be applied following completion of analytical work in conjunction with a Site Hazard Assessment(SHA) or Remedial Investigation/Feasibility Study (RI/FS)

Arsenic Code: Not reported

Base/Neutral/Acid Organics:

Not reported

Halogenated Organic Compounds:

Below MTCA cleanup levels

Horizontal Collection Method:

99

EPA Priority Pollutants - Metals and Cyanide:

Not reported

Metals - Other non-priority pollutant metals:

Not reported

Polychlorinated biPhenyls (PCBs):

Not reported

Pesticides:

Not reported

Petroleum Products:

Not reported

Phenolic Compounds:

Not reported

Non-Halogenated Solvents:

Not reported

Dioxin:

Not reported

Polynuclear Aromatic Hydrocarbons (PAH):

Not reported

Reactive Wastes:

Not reported

Corrosive Wastes:

Not reported

Radioactive Wastes:

Not reported

Asbestos:

Not reported

Conventional Contaminants, Organic:

Not reported

Conventional Contaminants, Inorganic:

Not reported

Facility ID: 13132191

Responsible Unit: NW

Latitude: 47 31 42

Longitude: 122 19 2

Ecology Site Status relative to the MTCA cleanup process:

Independent Remedial Action

Independent Site Status - those sites undergoing an independent cleanup:

Independent Site Assessment of Interim Remedial Action Report received

WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):

Not reported

Affected Media: Ground Water

Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Arsenic Code: Not reported

Base/Neutral/Acid Organics:

Not reported

Halogenated Organic Compounds:

Confirmed above MTCA cleanup levels

Horizontal Collection Method:

99

EPA Priority Pollutants - Metals and Cyanide:

Not reported

Metals - Other non-priority pollutant metals:

Not reported

Polychlorinated biPhenyls (PCBs):

Not reported

Pesticides:

Not reported

Petroleum Products:

Not reported

Phenolic Compounds:

Not reported

Non-Halogenated Solvents:

Not reported

Dioxin:

Not reported

Polynuclear Aromatic Hydrocarbons (PAH):

Not reported

Reactive Wastes:

Not reported

Corrosive Wastes:

Not reported

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

SPENCER INDUSTRIES INC (Continued)

1000308172

Radioactive Wastes: Not reported
Asbestos: Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported

B7
West
1/8-1/4
715 ft.
Higher

SPENCER INDUSTRIES, INC.
8410 DALLAS AVE. S.
SEATTLE, WA 98104

WA ICR S104485439
N/A

Site 2 of 2 in cluster B

WA ICR:

Date Ecology Received Report: 04/02/1999
Contaminants Found at Site: Chlorinated solvents
Media Contaminated: Groundwater
Cause of Contamination: Not reported
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-14
County Code: 17
Contact: Not reported
Report Title: Not reported

C8
SSW
1/8-1/4
724 ft.
Higher

1400 SOUTH CLOVERDALE, ON THE SE CORNER
SEATTLE, WA

SPILLS S105395524
N/A

Site 1 of 4 in cluster C

WA SPILL:

Facility ID: 515521
Date Received: 01/09/2001
Business Name: OLD GAS STATION
Material Desc : PETROLEUM - HYDRAULIC OIL
Medium: SOIL
Material Qty: 10
Material Units: GALLON

9
SSE
1/8-1/4
731 ft.
Higher

WILLARD S CROW
8604 DALLAS AVE. SOUTH
SEATTLE, WA 98108

UST U003028520
N/A

UST:

Facility ID: 853
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: LEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

	Site	Database(s)	EDR ID Number EPA ID Number
C10 South 1/8-1/4 787 ft. Higher	CROSBY AUTO REPAIR SHOP 8621 14TH AVE. S. SEATTLE, WA 98108 Site 2 of 4 in cluster C WA ICR: Date Ecology Received Report: 02/06/2001 Contaminants Found at Site: Petroleum products Media Contaminated: Soil Cause of Contamination: Tank Region: North Western Type of Report Ecology Received: Interim cleanup report Site Register Issue: 98-41 County Code: 17 Contact: Not reported Report Title: Subsurface Investigation	WA ICR	S105124711 N/A
C11 South 1/8-1/4 787 ft. Higher	STEPHANIE CROSBY PROPERTY 8621 14TH AVE S SEATTLE, WA 98108 Site 3 of 4 in cluster C LUST: Facility ID: 545685 Ecology Region: North Western Release ID: 550452 Release Date: 9/20/2000 00:00:00 Release Status: Cleanup Started Status Date: 9/13/2000 00:00:00 Alternate Name: CROSBY AUTO REPAIR SHOP Affected Media: Soil UST: Facility ID: 545685 Install Date: Not reported Capacity: 2,001 TO 4,999 GALLONS Status: Not reported Tank Name: LEADED GASOLINE Substance: NW Compartment #: Not reported Ecology Region: 2	UST LUST	U003750473 N/A
C12 South 1/8-1/4 787 ft. Higher	8621 14TH AVE SO SEATTLE, WA Site 4 of 4 in cluster C WA SPILL: Facility ID: 513647 Date Received: 09/20/2000 Business Name: PROPERTY OWNER Material Desc : PETROLEUM - GASOLINE Medium: SOIL Material Qty: Not reported Material Units: Not reported	SPILLS	S105394376 N/A
D13 SE 1/8-1/4 889 ft. Higher	FRONTWATER SERVICES INC 8661 DALLAS AVE SEATTLE, WA 98108 Site 1 of 2 in cluster D	RCRIS-SQG FINDS	1000323046 WAD988466991

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

FRONTWATER SERVICES INC (Continued)

EDR ID Number
EPA ID Number

Database(s)

1000323046

RCRIS:

Owner: PETER HOFMANN
(206) 767-0301
EPA ID: WAD988466991
Contact: PETER HOFMANN
(206) 767-0301

Classification: Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: 250(1)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

Regulation Violated: 250(3)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

Regulation Violated: 250(5A)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

Regulation Violated: 250(6)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

Regulation Violated: 330(1)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Map ID
Direction
Distance
Distance (ft.)
Elevation

Site

MAP FINDINGS

Database(s)

EDR ID Number
EPA ID Number

FRONTWATER SERVICES INC (Continued)

1000323046

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

Regulation Violated: 350(2)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/01/1993
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/06/1993
Penalty Type: Not reported

There are 6 violation record(s) reported at this site:

<u>Evaluation</u>	<u>Area of Violation</u>	<u>Date of Compliance</u>
Compliance Evaluation Inspection	TRANSPORTER-GENERAL REQUIREMENTS	05/07/199
	TRANSPORTER-GENERAL REQUIREMENTS	05/07/199
	TRANSPORTER-GENERAL REQUIREMENTS	05/07/199
	TRANSPORTER-GENERAL REQUIREMENTS	05/07/199
	GENERATOR-GENERAL REQUIREMENTS	05/07/199
	GENERATOR-GENERAL REQUIREMENTS	05/07/199

FINDS:

Other Pertinent Environmental Activity Identified at Site:

Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

D14 **BASIN OIL CO INC**
SE **8661 DALLAS AVE S**
1/8-1/4 **SEATTLE, WA 98108**
889 ft.
Higher **Site 2 of 2 in cluster D**

RCRIS-SQG **1000455947**
FINDS **WAD988477501**

RCRIS:
Owner: TERRY DREXLER
(206) 763-2948
EPA ID: WAD988477501
Contact: SHELLEY HOOD
(206) 763-2948

Classification: Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported

Map ID
Direction
Distance
Distance (ft.)
Elevation

Site

MAP FINDINGS

Database(s)

EDR ID Number
EPA ID Number

BASIN OIL CO INC (Continued)

1000455947

Violation Status: Violations exist

Regulation Violated:	-515(9)(a)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-515(6)(a), (9)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-515(9)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-516(6)(b), (9)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-515(9)(b)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-515(6&9), 279.22(c) 279.54(f)
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	-320
Area of Violation:	GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined:	09/26/2000
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	11/07/2000
Penalty Type:	Not reported
Regulation Violated:	250(5)
Area of Violation:	TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined:	12/08/1992
Enforcement Action:	WRITTEN INFORMAL
Enforcement Action Date:	08/03/1993
Penalty Type:	Not reported

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

BASIN OIL CO INC (Continued)

1000455947

Regulation Violated: 240(5)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/03/1993
Penalty Type: Not reported

Regulation Violated: 060(2)
Area of Violation: TRANSPORTER-GENERAL REQUIREMENTS
Date Violation Determined: 12/08/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/03/1993
Penalty Type: Not reported

There are 10 violation record(s) reported at this site:

<u>Evaluation</u>	<u>Area of Violation</u>	<u>Date of Compliance</u>
Compliance Evaluation Inspection	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
	GENERATOR-GENERAL REQUIREMENTS	
Compliance Evaluation Inspection	TRANSPORTER-GENERAL REQUIREMENTS	09/02/199
	TRANSPORTER-GENERAL REQUIREMENTS	09/02/199
	TRANSPORTER-GENERAL REQUIREMENTS	09/02/199

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Enforcement Docket System (DOCKET)
Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

15
WSW
1/8-1/4
911 ft.
Higher

8507 12TH AVE SO, BEHIND ADDRESS JUST SO
SEATTLE, WA

SPILLS S105396648
N/A

WA SPILL:
Facility ID: 517437
Date Received: 04/09/2001
Business Name: UNKNOWN
Material Desc : PETROLEUM - WASTE/USED OIL
Medium: ROADWAY-PAVED
Material Qty: 3
Material Units: GALLON

E16
SE
1/8-1/4
1002 ft.
Higher

MALARKEY ASPHALT CO INC
8700 DALLAS AVE S
SEATTLE, WA 98108

Site 1 of 4 in cluster E

FINDS 1005180814
000010128202

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s)
EDR ID Number
EPA ID Number

MALARKEY ASPHALT CO INC (Continued)

1005180814

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Enforcement Docket System (DOCKET)

E17
SE
1/8-1/4
1002 ft.
Higher

**MALARKEY ASPHALT CO
8700 DALLAS AV S
SEATTLE, WA 98108**

**RCRIS-SQG 1001121615
FINDS WAR000010413
CERC-NFRAP
CSCSL**

Site 2 of 4 in cluster E

CERCLIS-NFRAP Classification Data:

Site Incident Category: Not reported
Non NPL Code: NFRAP
Ownership Status: Private

Federal Facility: Not a Federal Facility

NPL Status: Not on the NPL

CERCLIS-NFRAP Assessment History:

Assessment: DISCOVERY
Assessment: PRELIMINARY ASSESSMENT
Assessment: SITE INSPECTION
Assessment: ADMIN ORDER ON CONSENT
Assessment: PRP REMOVAL
Assessment: SITE REASSESSMENT
Assessment: ADMIN ORDER ON CONSENT
Assessment: PRP REMOVAL

Completed: 06/06/1989
Completed: 11/15/1990
Completed: 09/28/1994
Completed: 04/26/1996
Completed: 07/13/1998
Completed: 09/14/2000
Completed: 09/21/2000
Completed: 09/21/2000

RCRIS:

Owner: MALARKEY ASPHALT CO
EPA ID: WAR000010413
Contact: LINDA DAWSON
(425) 744-1489

Classification: Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Enforcement Docket System (DOCKET)
Facility Registry System (FRS)
National Compliance Database (NCDB)
PCB Handler Activity Data System (PADS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

SHWS:

Facility ID: 2202
Responsible Unit: NW
Latitude: 47 31 34
Longitude: 122 18 42
Ecology Site Status relative to the MTCA cleanup process:
Remedial Action in progress
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
1 - Greatest assessed risk to human health and to the environment
Affected Media: Sediments
Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations
or manufacturing processes, certain contaminants are suspected to be present at the
site
Arsenic Code: Not reported

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

MALARKEY ASPHALT CO (Continued)

1001121615

Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
Horizontal Collection Method:	3
EPA Priority Pollutants - Metals and Cyanide:	Suspected to be present
Metals - Other non-priority pollutant metals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Non-Halogenated Solvents:	Not reported
Dioxin:	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

Facility ID: 2202

Responsible Unit: NW

Latitude: 47 31 34

Longitude: 122 18 42

Ecology Site Status relative to the MTCA cleanup process:

Remedial Action in progress

Independent Site Status - those sites undergoing an independent cleanup:

Not reported

WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):

1 - Greatest assessed risk to human health and to the environment

Affected Media: Air

Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site

Arsenic Code: Not reported

Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Suspected to be present
Horizontal Collection Method:	3
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant metals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Non-Halogenated Solvents:	Suspected to be present
Dioxin:	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Suspected to be present
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

Facility ID: 2202

Responsible Unit: NW

Latitude: 47 31 34

Longitude: 122 18 42

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s)
EDR ID Number
EPA ID Number

MALARKEY ASPHALT CO (Continued)

1001121615

Ecology Site Status relative to the MTCA cleanup process:

Remedial Action in progress

Independent Site Status - those sites undergoing an independent cleanup:

Not reported

WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):

1 - Greatest assessed risk to human health and to the environment

Affected Media: Surface Water

Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Arsenic Code: Not reported

Base/Neutral/Acid Organics: Confirmed above MTCA cleanup levels

Halogenated Organic Compounds: Not reported

Horizontal Collection Method: 3

EPA Priority Pollutants - Metals and Cyanide: Confirmed above MTCA cleanup levels

Metals - Other non-priority pollutant metals: Not reported

Polychlorinated biPhenyls (PCBs): Confirmed above MTCA cleanup levels

Pesticides: Not reported

Petroleum Products: Not reported

Phenolic Compounds: Not reported

Non-Halogenated Solvents: Not reported

Dioxin: Not reported

Polynuclear Aromatic Hydrocarbons (PAH): Confirmed above MTCA cleanup levels

Reactive Wastes: Not reported

Corrosive Wastes: Not reported

Radioactive Wastes: Not reported

Asbestos: Not reported

Conventional Contaminants, Organic: Not reported

Conventional Contaminants, Inorganic: Not reported

Facility ID: 2202

Responsible Unit: NW

Latitude: 47 31 34

Longitude: 122 18 42

Ecology Site Status relative to the MTCA cleanup process:

Remedial Action in progress

Independent Site Status - those sites undergoing an independent cleanup:

Not reported

WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):

1 - Greatest assessed risk to human health and to the environment

Affected Media: Ground Water

Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Arsenic Code: Not reported

Base/Neutral/Acid Organics: Confirmed above MTCA cleanup levels

Halogenated Organic Compounds: Not reported

Horizontal Collection Method: 3

EPA Priority Pollutants - Metals and Cyanide: Confirmed above MTCA cleanup levels

Metals - Other non-priority pollutant metals: Not reported

Polychlorinated biPhenyls (PCBs): Confirmed above MTCA cleanup levels

Pesticides: Confirmed above MTCA cleanup levels

Petroleum Products: Confirmed above MTCA cleanup levels

Phenolic Compounds: Not reported

Non-Halogenated Solvents: Not reported

Dioxin: Not reported

Polynuclear Aromatic Hydrocarbons (PAH): Confirmed above MTCA cleanup levels

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

MALARKEY ASPHALT CO (Continued)

1001121615

Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported

Facility ID: 2202
Responsible Unit: NW
Latitude: 47 31 34
Longitude: 122 18 42
Ecology Site Status relative to the MTCA cleanup process:
Remedial Action in progress
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
1 - Greatest assessed risk to human health and to the environment

Affected Media: Soil
Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Arsenic Code: Not reported
Base/Neutral/Acid Organics: Confirmed above MTCA cleanup levels
Halogenated Organic Compounds: Not reported
Horizontal Collection Method: 3
EPA Priority Pollutants - Metals and Cyanide: Confirmed above MTCA cleanup levels
Metals - Other non-priority pollutant metals: Not reported
Polychlorinated biPhenyls (PCBs): Confirmed above MTCA cleanup levels
Pesticides: Confirmed above MTCA cleanup levels
Petroleum Products: Not reported
Phenolic Compounds: Not reported
Non-Halogenated Solvents: Not reported
Dioxin: Confirmed above MTCA cleanup levels
Polynuclear Aromatic Hydrocarbons (PAH): Confirmed above MTCA cleanup levels
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported

E18 MALARKEY ASPHALT COMPANY
SE 8700 DALLAS AVENUE SOUTH
1/8-1/4 SEATTLE, WA 98108
1002 ft.
Higher Site 3 of 4 in cluster E

UST U003029265
LUST N/A

LUST:
Facility ID: 9901 Ecology Region: North Western
Release ID: 3975 Release Date: 5/7/1992 00:00:00
Release Status: Cleanup Started Status Date: 6/1/1995 00:00:00
Alternate Name: MALARKEY ASPHALT CO
Affected Media: Soil

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

MALARKEY ASPHALT COMPANY (Continued)

EDR ID Number
EPA ID Number

Database(s)

U003029265

Facility ID: 9901 Ecology Region: North Western
Release ID: 3975 Release Date: 5/7/1992 00:00:00
Release Status: Cleanup Started Status Date: 6/1/1995 00:00:00
Alternate Name: MALARKEY ASPHALT CO
Affected Media: Ground Water

UST:

Facility ID: 9901
Install Date: Not reported
Capacity: 111 TO 1,000 GALLONS
Status: Not reported
Tank Name: DIESEL
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 9901
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 9901
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: USED OIL/WASTE OIL
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 9901
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 9901
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: Not reported
Substance: NW
Compartment #: Not reported
Ecology Region: 1

E19 ALLIED BOLT CO
SE 8619 17TH AVE S
1/8-1/4 SEATTLE, WA 98108
1020 ft.
Higher Site 4 of 4 in cluster E

RCRIS-SQG 1000215305
FINDS WAD982659740

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

ALLIED BOLT CO (Continued)

EDR ID Number
EPA ID Number

Database(s)

1000215305

RCRIS:

Owner: FOSTENERS INC
(206) 763-7275
EPA ID: WAD982659740
Contact: DAVE ALLEN
(206) 763-2275

Classification: N, Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

F20
South
1/8-1/4
1034 ft.
Higher

CHEVRON 9 8484
8700 14TH AVE. S.
SEATTLE, WA 98108

WA ICR S104484680
N/A

Site 1 of 4 in cluster F

WA ICR:

Date Ecology Received Report: 02/14/1991
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 91-23
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 09/06/1991
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-07
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 01/27/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-46
County Code: 17
Contact: Not reported
Report Title: Not reported

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

CHEVRON 9 8484 (Continued)

S104484680

Date Ecology Received Report: 03/01/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-46
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 04/21/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-50
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 07/15/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-04
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 02/24/1994
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-21
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 01/30/1995
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-49
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 03/01/2001

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s)
EDR ID Number
EPA ID Number

CHEVRON 9 8484 (Continued)

S104484680

Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-43
County Code: 17
Contact: Not reported
Report Title: Ground Water Monitoring - January 2001

Date Ecology Received Report: 12/01/2001
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-44
County Code: 17
Contact: Not reported
Report Title: Ground Water Monitoring - July & October 2001

Date Ecology Received Report: 06/17/1996
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 95-07
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 06/17/1996
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 95-07
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/26/1997
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 95-18
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/20/1995
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

CHEVRON 9 8484 (Continued)

EDR ID Number
EPA ID Number

Database(s)

S104484680

Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-17
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 02/08/1999
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-16
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/13/1996
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-41
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 05/22/2000
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-27
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 06/08/2001
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-39
County Code: 17
Contact: Not reported
Report Title: Ground Water Monitoring - April 12, 2001

F21
South
1/8-1/4
1034 ft.
Higher
CHEVRON 98484
8700 14TH AVE S
SEATTLE, WA 98108
Site 2 of 4 in cluster F

UST **U003027297**
LUST **N/A**

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

CHEVRON 98484 (Continued)

EDR ID Number
EPA ID Number

Database(s)

U003027297

LUST:

Facility ID:	5249	Ecology Region:	North Western
Release ID:	1967	Release Date:	2/14/1991 00:00:00
Release Status:	Cleanup Started	Status Date:	6/1/1995 00:00:00
Alternate Name:	CHEVRON STATION # 9-8484		
Affected Media:	Soil		

Facility ID:	5249	Ecology Region:	North Western
Release ID:	1967	Release Date:	2/14/1991 00:00:00
Release Status:	Cleanup Started	Status Date:	6/1/1995 00:00:00
Alternate Name:	CHEVRON STATION # 9-8484		
Affected Media:	Ground Water		

UST:

Facility ID:	5249
Install Date:	12/31/1964 0:00
Capacity:	Not reported
Status:	Not reported
Tank Name:	UNLEADED GASOLINE
Substance:	NW
Compartment #:	Not reported
Ecology Region:	1

Facility ID:	5249
Install Date:	12/31/1964 0:00
Capacity:	Not reported
Status:	Not reported
Tank Name:	LEADED GASOLINE
Substance:	NW
Compartment #:	Not reported
Ecology Region:	1

Facility ID:	5249
Install Date:	12/31/1964 0:00
Capacity:	111 to 1,100 Gallons
Status:	Not reported
Tank Name:	Not reported
Substance:	NW
Compartment #:	Not reported
Ecology Region:	1

Facility ID:	5249
Install Date:	12/31/1964 0:00
Capacity:	Not reported
Status:	Not reported
Tank Name:	USED OIL/WASTE OIL
Substance:	NW
Compartment #:	Not reported
Ecology Region:	1

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

Database(s)
EDR ID Number
EPA ID Number

CHEVRON 98484 (Continued)

U003027297

Facility ID: 5249
Install Date: 12/31/1964 0:00
Capacity: Not reported
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

F22
South
1/8-1/4
1057 ft.
Higher

CASCADE ENTERPRISES
8709 14TH AVE S
SEATTLE, WA 98108

Site 3 of 4 in cluster F

RCRIS-SQG 1000474135
FINDS WAD988482303

RCRIS:
Owner: CASCADE ENTERPRISES
(360) 555-1212
EPA ID: WAD988482303
Contact: LILA SMITHIES
(206) 242-7095

Classification: N, Small Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

F23
South
1/8-1/4
1093 ft.
Higher

AUTOMAGIC SITE FORMER)
8721 14TH AVE. SE
SEATTLE, WA 98108

Site 4 of 4 in cluster F

WA ICR S103504745
N/A

WA ICR:
Date Ecology Received Report: / /
Contaminants Found at Site: Not reported
Media Contaminated: Soil
Cause of Contamination: Not reported
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-10
County Code: 17
Contact: Not reported
Report Title: Not reported

G24
South
1/8-1/4
1315 ft.
Higher

BOEING COMMERCIAL AIRPLANE GROUP BUILDING 15-01
1420 S. TRENTON ST.
SEATTLE, WA 98108

Site 1 of 5 in cluster G

WA ICR S104484979
N/A

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

BOEING COMMERCIAL AIRPLANE GROUP BUILDING 15-01 (Continued)

EDR ID Number
EPA ID Number

Database(s)

S104484979

WA ICR:

Date Ecology Received Report: 02/17/1998
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Cause of Contamination: Not reported
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 98-04
County Code: 17
Contact: Not reported
Report Title: Not reported

G25 AIR OIL PRODUCTS CORP
South 8801 14TH AVE SOUTH
1/4-1/2 SEATTLE, WA 98108
1320 ft.
Higher Site 2 of 5 in cluster G

UST U000922930
N/A

UST:

Facility ID: 9003
Install Date: 12/31/1964 0:00
Capacity: 111 to 1,100 Gallons
Status: Not reported
Tank Name: HEATING FUEL
Substance: NW
Compartment #: Not reported
Ecology Region: 1

G26 BOEING SOUTH PARK
South 1420 S TRENTON
1/4-1/2 SEATTLE, WA 98124
1324 ft.
Higher Site 3 of 5 in cluster G

FINDS 1000257107
RCRIS-LQG WAD980982672

RCRIS:

Owner: BOEING CO
(425) 865-2400
EPA ID: WAD980982672
Contact: LOUIS BABICH III
(425) 234-1766
Classification: N, Large Quantity Generator
Used Oil Recyc: No
TSDF Activities: Not reported

BIENNIAL REPORTS:

Last Biennial Reporting Year: 1999

Waste	Quantity (Lbs)	Waste	Quantity (Lbs)
D001	800.00	D005	1180.78
D006	1480.78	D007	1180.78
D008	1480.78	D009	300.00
D010	1180.78	D011	300.00
F002	380.78		

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

BOEING SOUTH PARK (Continued)

1000257107

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

Biennial Reporting System (BRS)

Facility Registry System (FRS)

Resource Conservation and Recovery Act Information system (RCRAINFO)

G27
South
1/4-1/2
1380 ft.
Higher

SCHAUER NORTHWEST INC
8819 14TH S
SEATTLE, WA 98108

RCRIS-SQG
FINDS
UST
LUST

1000159813
WAD076638964

Site 4 of 5 in cluster G

RCRIS:

Owner: SCHAUER NORTHWEST INC
(206) 763-0557

EPA ID: WAD076638964

Contact: ROBERT SCHAUER
(206) 763-0557

Classification: N, Small Quantity Generator

Used Oil Recyc: No

TSD Activities: Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

Facility Registry System (FRS)

Resource Conservation and Recovery Act Information system (RCRAINFO)

LUST:

Facility ID:	8179	Ecology Region:	North Western
Release ID:	4946	Release Date:	12/2/1993 00:00:00
Release Status:	Awaiting Cleanup	Status Date:	6/1/1995 00:00:00
Alternate Name:	ARCO SCHAUER		
Affected Media:	Soil		

Facility ID:	8179	Ecology Region:	North Western
Release ID:	4946	Release Date:	12/2/1993 00:00:00
Release Status:	Awaiting Cleanup	Status Date:	6/1/1995 00:00:00
Alternate Name:	ARCO SCHAUER		
Affected Media:	Ground Water		

Facility ID:	8179	Ecology Region:	North Western
Release ID:	4946	Release Date:	12/2/1993 00:00:00
Release Status:	Cleanup Started	Status Date:	Not reported
Alternate Name:	ARCO SCHAUER		
Affected Media:	Soil		

Facility ID:	8179	Ecology Region:	North Western
Release ID:	4946	Release Date:	12/2/1993 00:00:00
Release Status:	Cleanup Started	Status Date:	Not reported
Alternate Name:	ARCO SCHAUER		
Affected Media:	Ground Water		

Map ID
Direction
Distance
Distance (ft.)
Elevation

Site

MAP FINDINGS

Database(s)

EDR ID Number
EPA ID Number

SCHAUER NORTHWEST INC (Continued)

1000159813

UST:

Facility ID: 8179
Install Date: 12/1/1968 0:00
Capacity: 10,000 TO 19,999 GALLONS
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 8179
Install Date: 12/1/1968 0:00
Capacity: 5,000 TO 9,999 GALLONS
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 8179
Install Date: 12/1/1968 0:00
Capacity: 10,000 TO 19,999 GALLONS
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

G28
South
1/4-1/2
1380 ft.
Higher

ARCO
8819 14TH AVE. S.
SEATTLE, WA 98108

Site 5 of 5 in cluster G

WA ICR S104485503
N/A

WA ICR:

Date Ecology Received Report: 06/29/1995
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-15
County Code: 17
Contact: Not reported
Report Title: Not reported

H29
WNW
1/4-1/2
1545 ft.
Lower

SHAWNEE PAINTING SANDBLASTIN
8107 10TH AVE S
SEATTLE, WA 98108

Site 1 of 6 in cluster H

RCRIS-SQG 1000437912
FINDS WAD076630409

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

SHAWNEE PAINTING SANDBLASTIN (Continued)

EDR ID Number
EPA ID Number

Database(s)

1000437912

RCRIS:

Owner: SHAWNEE PAINTING SANDBLASTIN
(360) 555-1212
EPA ID: WAD076630409
Contact: DAN GAMBA
(206) 763-8050

Classification: Small Quantity Generator
Used Oil Recyc: No
TSD Activities: Not reported
Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

H30
WNW
1/4-1/2
1565 ft.
Lower

LONG PAINTING COMPANY
8025 10TH AVE S
SEATTLE, WA 98108

UST U003027410
N/A

Site 2 of 6 in cluster H

UST:

Facility ID: 5585
Install Date: 11/5/1998 0:00
Capacity: Not reported
Status: Not reported
Tank Name: UNLEADED GASOLINE
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 5585
Install Date: 11/5/1998 0:00
Capacity: Not reported
Status: Not reported
Tank Name: DIESEL
Substance: NW
Compartment #: Not reported
Ecology Region: 1

Facility ID: 5585
Install Date: 8/15/1978 0:00
Capacity: 10,000 TO 19,999 GALLONS
Status: Not reported
Tank Name: DIESEL
Substance: NW
Compartment #: Not reported
Ecology Region: 1